



City of Merrill Bicycle and Pedestrian Plan 2015

Prepared by North Central Wisconsin Regional Planning Commission



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Table of Contents

INTRODUCTION -----1

Purpose -----	1
Bicycling and Walking As Transportation-----	2
Defining Who Rides Bicycles -----	2
Types of Pedestrians -----	3

EXISTING CONDITIONS -----7

Roadway Conditions -----	7
Crash Data -----	8
Bicycling and Walking Facilities -----	12
Bicycling Education -----	15
Reference Plans and Laws -----	16

ROUTE PLANNING -----19

Travel Demand-----	19
Public Participation -----	19

VISION, MISSION, GOALS, AND OBJECTIVES -----21

RECOMMENDATIONS -----23

Implementation-----	23
List of Recommendations -----	24
Policy Recommendations -----	26
Education and Encouragement Recommendations -----	27
Enforcement Recommendations-----	30
Engineering Recommendations -----	32
Evaluation Recommendations-----	49

MAPS

Map 1	Bikeability of Roads
Map 2	Functional Classification of Roads
Map 3	Truck Routes
Map 4	Crash Locations
Map 5	Major Trip Generators
Map 6	Proposed Regional Trails
Map 7	Walking and Biking Facilities
Map 8	Bike & Pedestrian Pinch Points
Map 9	Latent Walking and Biking Demand
Map 10	Proposed Bike Routes
Map 11	Proposed Merrill Memorial Forest Bike Route

ATTACHMENTS

- A. Merrill, Bicycle & Pedestrian Crashes, 2005-2012
- B. Bicycle Crash Analysis for Wisconsin
- C. Bicycle Tune-Up Bill Summary Sheet
- D. Bike Route Signs & Road Markings for Merrill
- E. River Bend Trail Map
- F. Bicycle Parking Guidelines
- G. School Success Story: Omro WI
- H. Recommended STH 64 & 107 Area Improvement Panels
- I. Recommended Downtown Bike Route Loop Improvements
- J. Recommended 6th Ward STH 64 Improvements
- K. Recommended MARC & Stange Park Additions
- L. River Bend Trail crossing signs

CHAPTER 1

INTRODUCTION

PURPOSE

The primary emphasis of this plan is to develop a more bicycle and pedestrian friendly transportation system in the City of Merrill. Biking and walking are essential to maintaining and promoting the quality of life for residents and visitors of Merrill.

Merrill's motto is "the city of parks." With such a statement comes a feeling that there are easily accessible parks for all residents. Many positive attributes make Merrill a great place to walk or bike for daily trips and for recreation. Historic downtown buildings and houses in some neighborhoods, surrounded by rivers and towering white pines provide scenic beauty to travel through. Distances are short to walk or bike. Many destinations are within a 3.5- mile, 20-minute, bicycling distance of most residents. Topography in Merrill is generally flat with gradual hills that are convenient to climb on a bike or to walk. With all the reasons that make Merrill a good place to walk and bike, 6.7% of commuter trips in 2010 (U.S. Census 2006-2010 ACS) occurred by walking and biking, and 13% of school trips in 2015 (SRTS tally) were made by walking or biking.

This is a citywide plan developed by the Merrill Bike & Pedestrian Advisory Group (see back of plan cover) with oversight provided by the Merrill Parks and Recreation Commission, and technical assistance provided by NCWRPC. Efforts were made to include additional local citizens, schools and businesses to make all of Merrill bicycle and pedestrian friendly. Adoption of this plan does not commit Merrill to funding projects listed in this plan, however, success in obtaining possible grant money may require that a project be listed in this plan.

Funding for this effort was provided in part by a grant from the Wisconsin Department of Transportation. Staff support was provided by the North Central Wisconsin Regional Planning Commission. This Plan outlines recommendations to improve conditions for bicycling and walking in Merrill.

Some of the main components of this plan include:

- A review of existing conditions (e.g. sidewalk locations, crash data, pinch points, education, and existing plans & laws);
- Bike route planning;
- Vision, mission, goals, and objectives; and
- Recommendations that are policy based, in addition to education, enforcement, engineering, and evaluation.

There are recommendations for many City departments and Merrill area groups, along with the Highway Dept. and WisDOT based upon jurisdiction.

BICYCLING AND WALKING AS TRANSPORTATION

Bicycling and walking are two of the most efficient ways to get around. Walking is ubiquitous; nearly everyone depends on walking for at least part of every trip, if only from the parking lot to the nearest building. Although some lament that “people just can’t seem to walk anywhere anymore,” the reality is that, given the opportunity, many people choose to walk from one place to another, particularly if they can do so safely and conveniently. During the past fifty years, however, there is no question that we Americans have become increasingly auto-dependent. This is partially by choice, and partly as the result of a development pattern where individual land uses (e.g. retail, fast food, and schools) exist on the periphery of communities. Not only are edge of town land uses a long walk from where people live, but they may be a half-mile or more from the nearest sidewalk. Conditions such as these not only discourage able-bodied pedestrians, they literally prevent access for pedestrians with special needs, a group that includes elderly, children, and people with disabilities.

DEFINING WHO RIDES BICYCLES

Not everyone who walks or bikes has the same ability or confidence riding. Age, experience, and bicycling ability dictate where and when individuals (or parents, in the case of children) feel comfortable to safely bicycle on roads.

Age Differences

In general, young bicyclists are found in places where a park is within a mile from their home, and where development is clustered, like in a city’s downtown. Some kids learn the basics of balance and control with their first bicycle by the age of four. By the time they turn 10 years old many children are allowed to ride to school if the route is safe, or to the store, or to visit friends. By the time kids reach their junior high years (7-9th grades), they often have good traffic safety skills. Bicycles are their primary means of independent mobility beyond walking.

Many high school students stop riding their bikes as infatuation with the car takes hold. But after high school, some people come back to bicycling, especially if they attend college. Beyond school, many people limit their bicycling to family outings, recreational trail riding, and within a few miles of their homes for low-impact exercise.

Some adults bicycle to work. The latest trend is that young adults are choosing where to live based upon how walkable or bikeable their commute is. Other adults may use bicycles for touring long distances. Bicycle clubs which tend to cater to people in the 25 to 50 age group often sponsor rides through rural areas (e.g. GRABAAWR, which passes through Merrill).

By retirement age, many people who have not ridden for years take up bicycling again as a way to keep limber and fit. For some older adults, the bicycle or adult tricycle may be their only means of independent travel. In many cases, these bicyclists will ride close to home or on local trails.

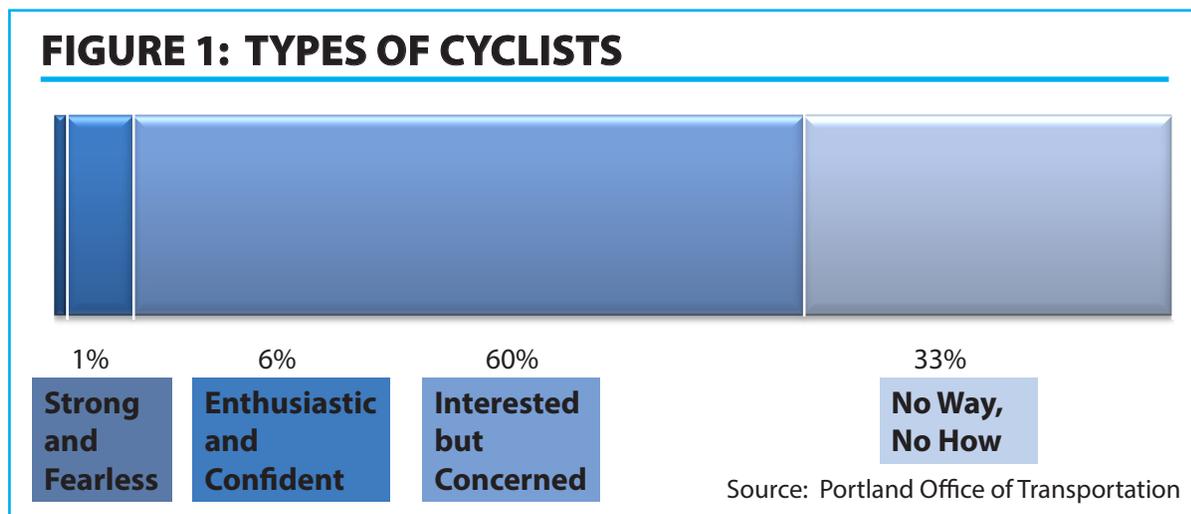
The challenge to increasing bicycling among the general population is making biking appeal to the big “interested but concerned” contingent.

By building a bicycle network that addresses the needs for the “interested but concerned” group, the more confident bike riders will also be served.

Types of Cyclists

The American population can be divided into four classes of bicyclists (see Figure 1):

- **1 percent describe themselves as “fearless.”**
These riders are confident in their abilities and will ride regardless of roadway condition, amount of traffic, or inclement weather.
- **6 percent call themselves “enthusiastic and confident.”**
Riders are comfortable sharing the road with motor vehicles, but they prefer to ride on separate facilities like bike lanes. May or may not ride in inclement weather.
- **60 percent are “interested but concerned” about their vulnerability.**
Very few of these people regularly ride a bicycle, but they like riding. They are concerned that their route is not safe to ride, so they don’t ride very often, and definitely do not ride when the weather is bad.
- **33 percent say “no way, no-how” to biking.**
They are not interested in bicycling at all, not even for recreation.



TYPES OF PEDESTRIANS

Everyone is a pedestrian at some point in their trip, whether it is from home to car, or walking to the bus stop. There are essentially two groups of pedestrians: 1) general pedestrians who walk, and 2) pedestrians with limitations that make walking difficult or impossible. The general pedestrian is anyone who can walk along and across streets without being limited by physical, sensory, or cognitive impairments. Other pedestrians, such as the elderly, children, people with physical or mental disabilities, and the blind may have limitations that make walking more challenging.

Since there are people with different abilities, then understanding how they need to interact with pedestrian facilities is the first step for policy makers in creating accessible facilities. The needs of disabled people and other pedestrians should determine what is accessible design that everyone can use. WisDOT’s Pedestrian Policy Plan 2020 was used in this section to identify the types of pedestrians and their limitations for navigating the built environment.

Children

Facilities designed to separate and protect children will be welcomed by everyone else. General limitations of children include:

- One-third less peripheral vision than adults, making it difficult to see turning vehicles or those down the road;
- Less cognitive ability and experience to judge speed and distance, making safe crossings more difficult;
- Lower auditory development makes it difficult to localize the direction of vehicle sounds;
- Overconfidence in their judgments may result in poor decisions on crossing timing;
- Inability to read or comprehend warning signs, traffic signals, and directional aids;
- Inexperience dealing with complex traffic situations results in poor decisions; and
- No sense of fear.

Nearly one-fourth of Wisconsinites are younger than 15 years of age. Children do not develop adequate sight, thinking, and hearing abilities necessary to cross streets safely until age 10 or later.

- WisDOT, Ped. Policy Plan

In Merrill, 53% of bike or pedestrian crashes with vehicles involved people 16 years old and under.

Mobility Impairments

People with mobility impairments include those who use wheelchairs, crutches, canes, walkers, orthotics, and prosthetic limbs.

Characteristics common to mobility impaired individuals include:

- Space requirements to accommodate their assistive device (for example, manual wheelchairs have an average turning radius of 5 feet and require a minimum width of 3 feet of sidewalk); and
- Difficulty negotiating soft surfaces (e.g. grass, sand, or loose gravel).

Sensory Impairments

Sensory impairments include problems with depth perception, deafness, tunnel vision, blindness, or color blindness. Assistive technologies may include hearing aids, corrective lenses, white canes, or guide dogs. For visually impaired users, intersections are easiest to negotiate when the line of travel from the edge of the sidewalk to the opposite curb is straight and unimpeded by obstacles rather than skewed as at some irregularly shaped intersections. Designing curb ramps to face the line of travel across a road, as shown in Figure 2, will greatly assist visually impaired users. Pedestrians with hearing problems cannot hear vehicles approaching. Driveways pose a challenge because the hearing impaired pedestrian is unable to hear the vehicle especially when shrubs or fences block the sound and view.

For visually impaired users, intersections are easiest to negotiate when the line of travel from the edge of the sidewalk to the opposite curb is straight and unimpeded by obstacles.

- WisDOT, Ped. Policy Plan

Cognitive Impairments

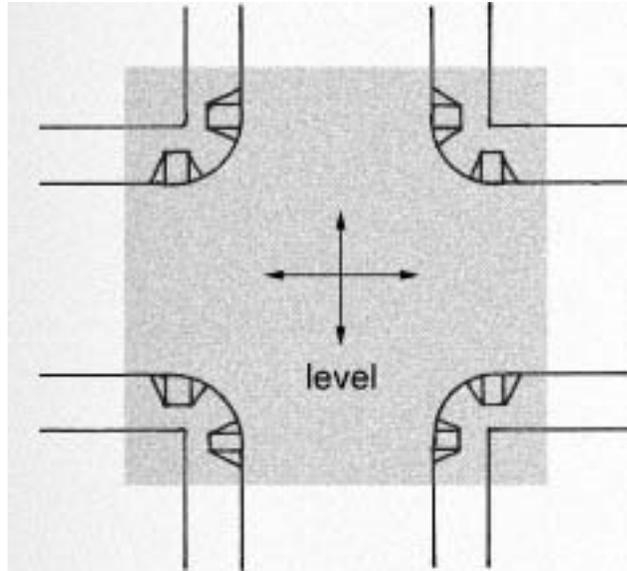
People with cognitive impairments have difficulty perceiving, recognizing, understanding, interpreting, and responding to information. Cognitive disabilities can hinder a person's ability to think, learn, and reason. Facility designers might consider that such a reduced capacity for sensory processing and problem solving may cause such people to experience more difficulties negotiating unfamiliar environments.

Overall, level sidewalks and well designed ramps and crossings complement people with disabilities.

- WisDOT, Ped. Policy Plan

FIGURE 2: CURB RAMP PLACEMENT AT INTERSECTION

The preferred design is to have a separate curb ramp aligned with each crossing direction to allow all pedestrians to cross at the same location. At most intersections, a pair of perpendicular curb ramps placed at 90 degree angles to one another is the optimal design for meeting these criteria.



The shaded area represents the portion of the intersection that should be level for pedestrian travel.
Source: FHWA, Designing Sidewalks and Trails for Access.

The challenge to increasing walking among the general population is making walking conditions safer for people with impairments.

Repairing the existing infrastructure to accommodate pedestrians with various impairments will also inspire others to get out and walk.

CHAPTER 2

EXISTING CONDITIONS

Knowing what currently exists provides a baseline for monitoring changes in facility use. An inventory of roadway conditions, bicycling and walking facilities, and crash locations will build this baseline.

ROADWAY CONDITIONS

Generally, the wider the road, the more vehicle and bicycle traffic it can accommodate, because fewer **triple pass occurrences** would restrict traffic speed. It is the law in Wisconsin that a motor vehicle must provide at least 3 feet between it and a bicycle when passing. Buses are wider than cars, and buses are about 8.5 feet wide; so a car (less than 8.5 feet wide) + 3 feet + a bike + an on-coming car can fit on a road that is 24 feet wide without any of the three vehicles leaving the pavement. The car passing the bike would probably cross the centerline slightly to make room for the bike, while still maintaining room for the on-coming vehicle.

Triple Pass Occurrence

A *triple pass occurrence* is when a bicycle, and oncoming motor vehicle, and an overtaking motor vehicle arrive at the same lateral section at the same time.

Functional Classification

Functional classification groups highways and streets according to the character of service they are intended to provide, ranging from a high degree of travel mobility to land access functions. Merrill's Functional Classification for roads is Map 2.

Roads rated on Map 1 are the higher traffic volume roads that are functionally classified by WisDOT as: Collector, Minor Arterial, or Principal Arterial. Most road recommendations will focus on these types of roads.

Bikeability of Roads

All roads in Merrill that are classified as *collector, minor arterial, or principal arterial* were rated for their level of bicycle friendliness by WisDOT in 2014 (Map 1 – Bikeability of Roads). Low traffic volumes and paved surfaces often make neighborhood roads in Merrill ideal for bicycling, so most neighborhood streets are considered as having the “best conditions” for bicycling, and therefore are not rated on Map 1.

Traffic Volumes

Traffic counts identify how many motor vehicles pass a point during the count period. Some counters are calibrated to also identify bicycles, but neither WisDOT nor Lincoln County are using such counters at this time.

Historically, Center Avenue was USH 51 before the current USH 51 freeway was constructed. Most of Center Avenue was constructed as a 4-lane road, but the Wisconsin River Bridge was only constructed to support 2-wide lanes of traffic, and was therefore a bottleneck at busy tourism times of the year.

When WisDOT constructed the roundabout on Center Avenue at STH 64, they determined that only 2-lanes of the former USH 51 (now Center Ave) were needed, thus proving that excess road capacity now exists on Center Avenue. The roundabout construction coincided with reconstruction of STH 64, west to Mill Street. This STH 64 reconstruction modified the 2-lane road with 2-parking lanes, to retain 2 wide travel lanes and now have a center turn lane instead of any on-street parking in these 3 blocks, all within the same road right-of-way.

The 2013 Access Safety Study of STH 64 at Pine Ridge Avenue identified what the projected peak traffic needs would be in this area. Currently, STH 64 between Stuyvesant Street and Eagle Drive has traffic levels around 8,900 AADT, and projected AADT of 14,500 to 15,550 by 2043.

See Map 2 (Functional Classification of Roads) for 2010 traffic volumes.

Truck Routes

Several state highways in Merrill are *Designated Long Truck Routes*, which means that the heaviest, longest, and oversized trucks that can legally operate in Wisconsin can use these roads. See Map 3 – Truck Routes. WisDOT requires a 12-foot wide lane to accommodate these trucks.

The City of Merrill also has designated a few additional roads for through truck traffic.

National research indicates that bicycles and trucks can exist successfully in the same city by separating bicycle traffic from truck traffic and by developing context sensitive solutions where the two modes of travel need to use the same roads.

No truck & bike or truck & pedestrian crashes occurred from 2005-2012 in Merrill.

CRASH DATA

Safety is often cited as the primary reason people do not bike or walk more. Creating a safer environment for these activities is an important focus that requires an understanding of safety issues and proven actions that can be taken to improve safety. Crashes involving motor vehicles that result in injuries or fatalities to bicyclists and pedestrians have been recorded at the state and federal levels for many years.

Over the past decades, traffic safety experts have been moving away from the term **accident** in favor of the term **crash** to describe a collision. An accident is defined as an unforeseen and unplanned event or circumstance. WisDOT made this change in 1990 because traffic crashes are not accidents, but avoidable events caused by a single variable or chain of variables.

Crash data are reported universally for Wisconsin on Form MV400. However, it is important to highlight some shortcomings:

1. Some studies indicate that as few as 10% of all bicycle crashes are reported;
2. Some roads with a higher frequency of bicycle crashes may have higher bicycle use;
3. Very likely that there will be no detectable pattern of bicycle crashes because of the small number reported in rural areas and small cities.

Merrill Crash Data

In Merrill, it appears that many crashes occur along the downtown loop of STH 64 and other main roads. Some known difficult crossings throughout the City also have additional crashes.

Here are some statistics about crashes that involved a bike or a pedestrian in Merrill:

- There were 30 bike and pedestrian crashes between 2005-2012;
- 63% of these crashes involved a bike, and 36% involved a pedestrian;
- Half are male and half are female [nationally, most crashes are male];
- 53% of these crashes involved people ages 16 and under;
- 27% of these crashes involved people ages 17-64;
- 17% of these crashes involved people ages 65 and over, with 1 person's age not listed in the data.

A summary of Merrill crash data collected between 2005-2012 is in Attachment A, and shown on Map 4.

Wisconsin Bike Crash Analysis

A bicycle crash analysis that was performed for Wisconsin in 2006 (Attachment B) has some major findings that directly affect bicycle planning in Merrill:

"Four out of the top five crash types indicate that the motorist made the critical error. This may indicate that motorists are not fully aware of bicyclists on the roadway and that increased education is necessary."

"For local rural roads [like county highways near Merrill], the greater the width, the lower the bicycle-vehicle crash rate. Twenty foot roadways had a crash rate that was double the crash rate of 22 foot roadways, but the 22 foot roadways had a rate that was over 40% higher than 24' roadways. Overtaking-type crashes were significantly lower for 24' roadways."

"Rural state highways had much lower bicycle-vehicle crash rates than local roads. Similar to local roads, 24-foot roadways had significantly lower crash rates than 22-foot roadways. Interestingly, having three foot paved shoulders did not improve the crash rate among these widths of roadways. However, the crash rate did significantly lessen when five [foot] paved shoulders were added [compared to three foot paved shoulders]."

Since crash typing provides an indicator of critical errors or actions that likely led to the crash rather than on assigning fault, then potential options for reducing specific types of crashes can be identified. These options include better engineering and design, increased education, stronger enforcement, or a combination. As an example, the most frequent crash type involving children is mid-block ride out. Eliminating on-street parking would be one way (engineering/design) to reduce the incidence of this type of crash; however, educating parents and children to this danger may be more effective and less controversial. Similarly, while there are a number of engineering and design techniques that would be effective in reducing the number of bike crashes involving turning motor vehicles, using educational and enforcement techniques to alert both bicyclists and motorists of this concern should be a complementary strategy. These are but two of a litany of common causes for bike crashes and are cited because they demonstrate that there are multiple techniques that are available for improving safety for both bicyclists and pedestrians. At the same time, they show that having a clear understanding of how, where, and why crashes occur can be a crucial determinant in effectively targeting dollars for safety related improvements.

Types of Bike Crashes

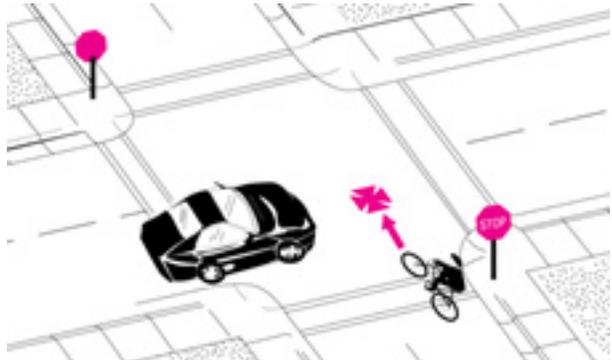
Studies have shown that it is possible to “type” crashes into distinct categories. A study undertaken by the FHWA of crashes involving bicycles and moving motor vehicles in six states has identified 38 different crash types. With a database of nearly 3,000 incidents, there are enough incidents in each crash type to provide a relatively good indicator of where, why, and how most crashes occur.

The FHWA study found that the most common crash types were: (Figure 3)

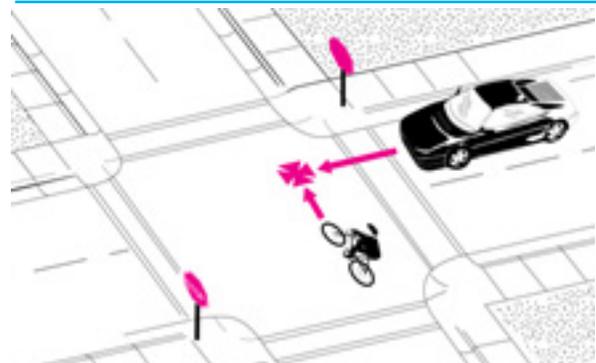
- 1.) ride out at stop sign (9.7%)
- 2.) drive out at stop sign (9.3%)
- 3.) ride out at intersection – other (7.1%)
- 4.) drive out at mid-block (6.9%)

FIGURE 3: TOP CRASH TYPES

1. Ride out at stop sign



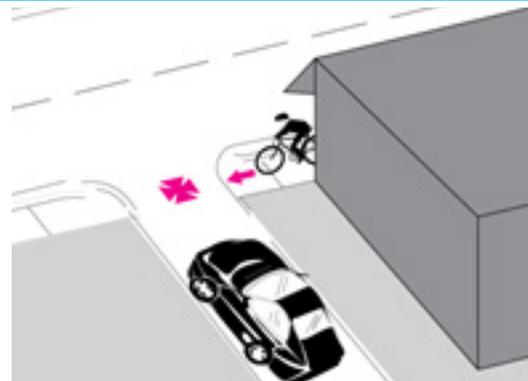
2. Drive out at stop sign



3. Ride out at intersection-other



4. Drive out at mid-block

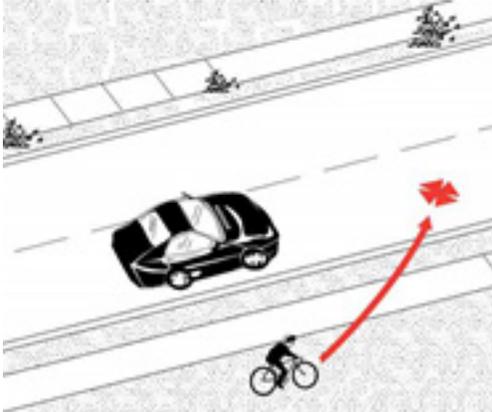


Source: FHWA, Crash-Type Manual for Bicyclists

FIGURE 4: TOP CRASH TYPES INVOLVING CHILDREN

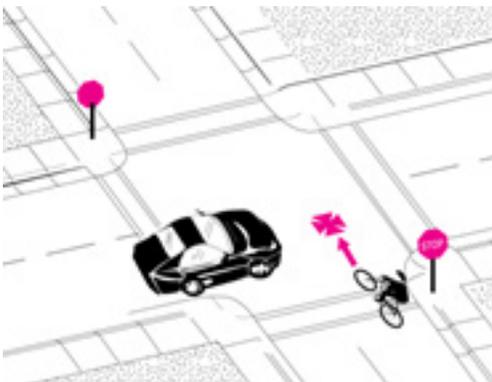
1. *Bicyclist mid-block ride-out*

1. Rides of the curb;
2. Rides out at a driveway;
3. Rides into the road from a gravel shoulder or parking lane.



2. *Bicyclist ride-out at controlled intersection*

Rides through a stop sign.



3. *Bicyclist makes unexpected turn or swerves into traffic*

Four common possibilities:

- Left turn: parallel paths, same direction
- Left turn: parallel paths, facing approach
- Swerve left: parallel paths, same direction
- Right turn: bicyclist riding wrong way

Source: FHWA, Crash-Type Manual for Bicyclists

The three most common crash types involving children: (Figure 4)

- 1.) bicyclist mid-block ride-out
- 2.) bicyclist ride-out at controlled intersection
- 3.) bicyclist makes unexpected turn or swerves into traffic

WALKING AND BICYCLING FACILITIES

Pedestrian Infrastructure

Sidewalks are the primary piece of infrastructure that everyone thinks of when asked where walking is allowed, but the road itself is a walking surface. In Merrill all roads except Highway 51 are legal to walk and bike on. It is not safe to walk in a travel lane of a 4-lane highway, and it would slow down traffic flow, so sidewalks or a 5-foot paved shoulder are usually provided for people to walk on. Walking is only acceptable on low volume streets and streets that are wide enough to allow for parked vehicles. If there are too many parked vehicles taking advantage of this space, then sidewalks should be installed.

Crosswalks are the other piece of infrastructure for people to use when crossing streets. In Wisconsin, every street intersecting another street has crosswalks regardless if they are marked or not.

Difficult walking areas and crosswalks within Merrill are shown on Map 8, Bike & Pedestrian Pinch Points.

The challenge for road designers is to balance competing user types (cars, trucks, bikes, pedestrians) in the limited amount of right-of-way, and to develop a transportation infrastructure that provides equal access and safety for all user types.

Determining if a 4-lane highway or other road should have sidewalks or paved shoulders, directly relates to how many people are projected to walk along that road in a given day. For example, most state highways now have at least 3-foot wide paved shoulders to reinforce the lane pavement, but also to provide a minimal amount of pavement for bicyclists. Some high volume rural state highways have 5-foot wide paved shoulders because of the higher amount of walkers and bikers. Without the wider shoulders, the higher number of walkers and bikers would impede traffic (cause too many **triple pass occurrences**). The wider paved shoulders increases the comfort level for pedestrians and bicyclers.

This plan takes into account where people are walking now or where they could be walking if the right facilities or circumstances were in place for them to walk confidently.

In Merrill, sidewalks exist on both sides of many roads, but there are significant gaps or missing altogether in various residential neighborhoods.

Map 7, Walking and Biking Facilities, shows where sidewalks are in Merrill, along with other bike and pedestrian facilities.

Bicyclist Infrastructure

Paved roads are the main bicycling infrastructure. In Merrill all roads except Highway 51 are legal to walk and bike on. Pavement width, road geometry, traffic volume (both bicyclist and motor vehicles), and speed limit determine if a road is bicycle friendly or not.

Map 1, Bikeability of Roads, shows what roads in Merrill are listed as bicycle friendly by WisDOT. Another way to view this map is that bicyclists who are confident enough in their riding ability (“fearless” & “enthusiastic and confident”) will use this map to plan what roads are safe to use right now for their daily commute.

Map 8, Bike & Pedestrian Pinch Points, shows what roads and intersections in Merrill were identified through this planning process as not friendly for bicycling or walking.

Bicycle parking is a key piece of infrastructure that is necessary when people decide to bike to destinations. Schools are traditionally the only places that have enough bike parking for their users. When bicycling becomes a transportation choice vs. a recreational use, then more bike parking will show up at other employers, commercial and civic locations. Locking a bike to any number of objects is not adequate bike parking, although it will show where the immediate need for bike parking exists. A bike owner needs a convenient safe place to secure their bike, which is a similar need to a motor vehicle owner. Basically, well designed bike parking allows a bike to be secured using a U-lock, supports the locked bike so it does not fall down, and is located on a paved surface near the main entrance. See Attachment F for summarized bike parking guidance.

Bicycle wayfinding is also bike route development. Some roads are just too busy for most users to feel comfortable riding on, so alternate routes are needed. Other parallel roads and the River Bend Trail both provide this alternative. While riders are on streets or paths that are not the main roads in Merrill, then they may need some guidance that directs them to common civic, commercial district, and park destinations. There are two common sources for constructing and locating proper wayfinding signage: The Manual for Uniform Traffic Control Devices, and the NACTO Urban Bikeway Design Guide.

Map 8, Bike & Pedestrian Pinch Points, shows where there are roads that are difficult to bike on and intersections that are difficult to cross. Walking and biking facility improvements should be a higher priority at these places before addressing other areas in the City.

On-street bicycle facilities in Merrill:

- **Taylor Street bike lanes** (Figure 5) were added with the recent road resurfacing.
- **East 1st Street**, between Polk St. and Scott St. (Figure 5), has no bicycle markings on it. What makes this road bike friendly now are: 1) the City removed parking from both sides, which created two 18-foot wide travel lanes (only 12-foot travel lanes are needed for truck routes), and 2) the 25 mph speed limit was retained, which is a safe speed for sharing the lane (up to 35 mph). The “interested but concerned” bike riders may still not feel confident enough without the white line identifying a “bike lane.”

Off-street bicycle and pedestrian facilities in Merrill:

- **Lions Park staircase** (Figure 5) is in fair condition, is lit at night, and connects to the neighborhood above. A sign could be installed on East Street that directs people to this publicly available staircase.
- **Lions Park dirt ramp path** (Figure 6) is an informal path with very steep drop off ramp that was made through many bicycle users riding down the hill. See recommendation about how to improve Lions Park Dirt Path.
- **River Bend Trail** (Figures 9 & 10) is the newly developing bikeway along a former railroad right-of-way. See Attachment E for the planned route, Map 10 for the existing route, and Map 7 which shows completed sections.
- **Stange Park** (Figures 11, 12, & 13) has 5 bridges, all of which are in great condition, but all of the pathways to them are in poor condition.
- **Trails at the MARC** (Figure 14) are for recreation and also connect with trails and roads inside of Council Grounds State Park. Some curb ramps and path connections are needed at the MARC to make the trails bicycle friendly.

Figure 5: Lions Park Stairs



Figure 6: Lions Park Dirt Path



Figure 7: Taylor Street Bike Lanes



Figure 8: East 1st Street



Figure 9: River Bend Trail



Figure 10: River Bend Trail - Bridge



Figure 11: Trails and Bridges in Stange Park



Figure 12: Prairie River Pedestrian Bridge



Figure 13: Stange Park Paths



Figure 14: Trails at the MARC



BICYCLING EDUCATION

Bike Rodeos are safety clinics aimed at teaching children under 15 years old the basics of riding a bike in a neighborhood. Clinics usually include bike safety inspections, a safety lecture about the rules of the road (10 to 15 minutes), followed by a ride on a miniature “chalk street” course set up in a parking lot where young cyclists are shown where and how to apply the rules. Optional activities include helmet fittings and prizes.

In Merrill, the police department has been providing bicycle education in 3rd and 4th grades. The Merrill Optimist Club along with Merrill Park and Recreation Department and the Merrill Police Department provides bicycle safety training at the annual Children’s Festival, which targets toddlers up to 5th grade.

REFERENCE PLANS AND LAWS

Each plan and law listed below affects bicycling facilities in Merrill.

Merrill's Code of Ordinances

Various municipal codes in Merrill relate to where sidewalks are required, size and strength requirements, who may bicycle on them, and maintenance responsibility. The codes also state where bikeways are required, along with their design, maintenance, and use.

Merrill's Comprehensive Plan

Merrill was in the process of updating their Comprehensive Plan while the Bicycle and Pedestrian Plan was being completed. The Transportation chapter of the Comprehensive Plan will reference this Bicycle and Pedestrian Plan.

Complete Streets Law

Wisconsin's Pedestrian and Bicycle Accommodations law addressing Complete Streets was codified in 2009. It was incorporated as State statute §84.01(35) and later into administrative rule as Transportation 75.

Complete Streets are roadways designed and operated to enable safe, convenient, and comfortable access and travel for all users. Pedestrians, bicyclists, motorists and public transport users of all ages and abilities are able to safely and comfortably move along and across a complete street.

All roads receiving state or federal funding through the Wisconsin Department of Transportation must also accommodate bicycles and pedestrians per this law. Local governments may pass their own Complete Streets ordinances to cover their own road networks. Specific guidelines related to traffic counts, and if the road is urban or rural, are used in these ordinances to determine whether a sidewalk, path, or lane is needed to accommodate bicycles and pedestrians.

State Trails Network Plan

This 2001 document clarifies the Wisconsin Department of Natural Resources (WDNR) role and strategy in the provision of all types of trails. The plan identifies a series of potential trail corridors that would link existing trails, public lands, natural features, and communities. This statewide network of interconnected trails would be owned and maintained by municipalities, private entities, and partnerships of the two. Preserving transportation corridors, such as old rail lines, is specifically discussed as a very important strategy in the creation of recreational and alternative transportation corridors.

One Segment affects Merrill (see Map 6):

Segment 18 – Tomahawk to Wisconsin Dells

From the end of the Bearskin/Hiawatha Trail in Tomahawk, this corridor would go south to Merrill, and then into the West Central Region terminating in Wisconsin Dells. Part of State Highway 107 has wide shoulders to accommodate bicycles and was identified in the Wisconsin Bicycle Transportation Plan 2020. When the remaining section of highway is reconstructed, wide shoulders will be included. Going south, this corridor links to Wausau, where it could link up to Mountain Bay Trail from there by road corridors.

North Central Wisconsin Regional Bicycle Facilities Network Plan, 2004

North Central Wisconsin Regional Planning Commission created this document to guide the development of an interconnected bikeway system for the North Central Wisconsin Region at the county level.

One route is listed: “Scenic Bike Auto Tour” on Map 6. The following improvement description from this plans was created to facilitate implementation:

“Lincoln also has a scenic bike and auto tour, which is incorporated into the Regional trail network and linked to the Hiawatha. This tour route includes STH 107, long suggested as a designated bike route due to good bicycle suitability and its scenic track along the Wisconsin River. The tour also includes STH 17, which is not so well suited to bicycling and should be a candidate for bicycling improvements such as an expanded paved shoulder.”

STH 64 / Pine Ridge Avenue, Access Safety Study, 2013

This study was requested by WisDOT due to their desire to transfer the right-of-way property along STH 64 between Eagle Drive and Pine Ridge Avenue to the City.

Bicycle and pedestrian facilities were considered as part of the study, and recommendations were made for the whole study area.

River Bend Trail

This is a venture by citizens and businesses to develop a recreational trail on specific vacant railroad right-of-ways in Merrill. See Attachment E. Completed segments appear on Map 7.



CHAPTER 3

ROUTE PLANNING

TRAVEL DEMAND

Motorists can expect to encounter bicyclists and pedestrians nearly anywhere on roadways in and near Merrill. As you can see on Map 5, Major Trip Generators, there are schools, parks, and major employers in every corner of Merrill. Travel distances are short enough for residents to walk and bike to many destinations.

The national average bicycle trip length is 2.31 miles. The national average pedestrian trip length is less than 2 miles. WisDOT through the Safe Routes To School program considers a 2-mile radius around each school as the focus area where walking and bicycling facilities need scrutiny.

Map 9, Latent Walking and Biking Demand, shows the potential for more walking and biking to occur when conditions become favorable for the “interested but concerned” bicyclist and similar minded pedestrians. Housing density, school enrollments, and employer interviews were used to map where potential demand for walking and biking facilities may increase those activities.

PUBLIC PARTICIPATION

To create bicycle and pedestrian facilities that local residents want, several methods of public participation were used.

August 22, 2013 – the whole Merrill community was notified about this planning process in a presentation that piggy-backed on a well attended public meeting regarding a temporary alternate route for the River Bend Trail. NCWRPC had a poster and provided a brief introduction about the citywide bicycle and pedestrian plan that would kick-off soon.

January 14, 2014 – Advisory Group Meeting #1 – At this meeting most group members were able to share where the problem areas are. Additional information was provided to them after the meeting about how to start a fun ride and what bike racks are best to install.

May 29, 2014 – The Advisory Group performed a Walk Audit at several problem areas throughout the City. The Parks and Recreation Commission identified the Walk Audit areas with NCWRPC guidance.

June 19, 2014 – A second Walk Audit was performed with staff from Merrill’s Streets Dept., Merrill’s Parks & Recreation Dept., NCWRPC, and WisDOT. Through performing this exercise we noticed additional problem areas and strategies to fix the problems.

January 27, 2015 – Advisory Group Meeting #2 – At this meeting a transportation study was reviewed along with various plan maps. Bike routes were identified to serve all of Merrill, and direction was given for staff to identify where transportation use of the bicycle is occurring in Merrill, since the Advisory Group identified themselves mainly as recreational users.

April 13, 2015 – A third Walk Audit was performed with staff from Merrill’s Streets Dept., Merrill’s Parks & Recreation Dept. and NCWRPC, regarding creating a bicycle boulevard, and reviewing how to best mark the downtown bike route loop.

April 2015 – NCWRPC staff took a two day tour of Merrill where they:

1. Performed Walk Audits and took pictures of various locations that were identified as problematic for walking or biking;
2. Interviewed seniors at two events in the Merrill Community Enrichment Center about how they get around Merrill;
3. Conducted interviews with facility managers at Church Mutual, Ministry Good Samaritan, Weinbrenner Shoe Company, and Semco Windows and Doors to get a feel for how many employees may be walking and biking.

May 20, 2015 – Advisory Group Meeting #3 – An initial plan draft, a series of maps, and a set of goals were reviewed. Extensive feedback was incorporated into the plan.

June 3, 2015 – Parks and Recreation Commission reviewed and released for public review the initial plan draft that was revised from Advisory Group Meeting #3.

Public Review Period – Multiple groups were contacted about the plan and where to find it (i.e. in the T.B. Scott Library and online).

July 1, 2015 – Parks and Recreation Commission held a Public Hearing on the Plan. Changes were suggested to be made, and the plan was approved with changes.

CHAPTER 4

VISION, MISSION, GOALS, & OBJECTIVES

The following mission, goals, and objectives were created by the Advisory Group working with NCWRPC.

VISION:

For children and adults to safely bicycle and walk throughout Merrill for daily trips and recreational purposes.

MISSION:

Develop a transportation system that is safe and easily shared by motorists, bicyclists, and pedestrians, by bringing all streets up to a comfortable level of compatibility.

GOAL 1. MAKE ALL ROADS SAFE TO WALK OR BIKE

All roads in Merrill are available for people to walk and bicycle on. Some roads are dangerous or very uncomfortable to walk or bicycle on, and therefore need alternative routes or the road right-of-way needs some other accommodation to make it safe for all users.

Objective 1.1 – Identify very hazardous road segments for prioritization so that basic bicycling improvements can be scheduled to make those segments safer.

Objective 1.2 – Identify pinch points where walking could be dangerous due to predictable and observable hazards.

Objective 1.3 – Sign and possibly paint pavement markings for bike routes so drivers become aware to share the road with bicyclists.

Objective 1.4 – Create better outdoor recreation wayfinding and trailhead signage.

GOAL 2. PROVIDE BICYCLE PARKING

Everyone who owns a bicycle has a place to securely park it at home, but many destinations do not provide secure bicycle parking.

Objective 2.1 – Provide bicycle parking guidance through fact sheets to all employers.

Objective 2.2 – Provide bicycle parking in downtown commercial areas in the street furniture zone of the sidewalk and in select street parking spots (like at the ends of each block).

Objective 2.3 – Create a bicycle parking ordinance.

GOAL 3. PROVIDE SAFE ROUTES TO SCHOOLS

This is an opportunity to make walking and bicycling to school safer for children in grades K-8, and to increase the number of families who encourage their children to walk and bike.

Objective 3.1 – Apply for Safe Routes To School assistance for each school.

GOAL 4. BUILD BIKE FACILITIES FOR “INTERESTED BUT CONCERNED” BICYCLISTS

All roads in Merrill are available for people to walk and bicycle on. Some roads are dangerous or very uncomfortable to ride on, so the challenge is making biking appeal to this huge contingent of “interested but concerned” bicyclists.

Objective 4.1 – When a road is 25 MPH, has a painted center line, and is not a truck route, then paint white edge lines (urban shoulder) to make lanes that are not wider than 10-feet. Narrow roads promote slower driving.

Objective 4.2 – On bike routes and paths that are not on the main roads in Merrill, design and install bicyclist oriented wayfinding signage that directs them to common civic, commercial district, and park destinations.

Objective 4.3 – Place 4-lane sections of Center Avenue and STH 64 on road diets to provide bike lanes. Side street traffic will also benefit due to fewer lanes to cross.

GOAL 5. DESIGN WALKING FACILITIES FOR IMPAIRED INDIVIDUALS

Making it easier for impaired individuals to walk around will also benefit everyone else.

Objective 5.1 – Make intersections predictable for visually impaired users to navigate by pointing curb ramps in the line of travel across a road.

Objective 5.2 – Provide adequate crosswalk lighting for pedestrians using the crosswalk, and for vehicle drivers to see pedestrians in crosswalks in time to stop for pedestrians.

Objective 5.3 – Create sidewalks that are level and have properly sloping ramps at crosswalks. Replace stairs in the sidewalk line of travel with gradually sloping sidewalks, and keep sidewalks level at driveways so that only the driveway apron slopes to meet the road – or lower the whole sidewalk instead of slanting it toward the road.

Objective 5.4 – Where paths are needed, but asphalt or concrete are not desired, provide flat hard packed surfaces that are wide enough to allow wheelchairs to navigate a path during a rain event (at least 5-feet wide). A saturated grass path will be too soft to allow a wheelchair to pass.

CHAPTER 5

RECOMMENDATIONS

Plan support and endorsement both by public officials and residents alike will greatly enhance the potential that key policy based recommendations related to bicycle and pedestrian issues will be implemented. These recommendations are seen as an important first step in promoting uniform bicycle and pedestrian facility decisions throughout the city.

In addition to policy-based recommendations, NCWRPC created education, enforcement, engineering and evaluation recommendations. Where possible, the recommendations have been developed to establish priorities for undertaking specific actions. This will help decision-makers understand the value of their actions within the broader context of Merrill's overall bicycle and pedestrian network.

The cost-effectiveness of physical improvements often can be influenced by when, where, and how specific projects are undertaken. For example, adding paved shoulders to a larger road project is less costly than paving the shoulders as a "stand-alone" project. Similarly, since roadways with traffic volumes under 400 vehicles per day are generally considered acceptably safe for bicycling, expenditures for marking bike lanes to such a low volume road would be difficult to justify.

IMPLEMENTATION

The recommendations on the following pages will identify an implementation schedule for each one. The following guidance for how soon a recommendation could occur is listed by each specific recommendation:

- Short-range (less than 5 years)
- Intermediate (5 to 10 years)
- Long-range (more than 10 years)

It is important to note that implementation is heavily reliant on the availability of sufficient funding. Specific infrastructure recommendations need to be further developed at the time a project is undertaken. Routing will also be dependent on the physical characteristics of the location to be developed.

LIST OF RECOMMENDATIONS

<i>Policy Recommendations</i>	26
Advertise Infrastructure Changes-----	26
Create Sidewalk Plan-----	26
Change New Sidewalk Width in Code-----	27
Allow Bikeway to Replace Sidewalk-----	27
Remove Snow and Ice from Stange St Segment of River Bend Trail-----	27
<i>Education and Encouragement Recommendations</i>	27
Paint Bike Lanes and Sharrows as Part of Public Education-----	28
Citywide Biking and Walking Encouragement Activities-----	28
School Biking and Walking Encouragement Activities-----	28
Print Bike Routes on Tourism Map-----	29
Bicycle Education Classes-----	29
Education in Lieu of Punishment-----	30
Bicycle Education Website-----	30
<i>Enforcement Recommendations</i>	30
Roadway Design - Vision Zero Deaths-----	30
Crosswalk Enforcement-----	31
School Zone Speed Enforcement-----	31
Sidewalk Snow and Ice Removal Enforcement-----	31
<i>Enginnering Recommendations</i>	32
Sidewalk Maintenance-----	32
Pedestrian Signals-----	32
Bicycle Parking-----	33
Bike Racks on Buses-----	33
Safe Routes To School-----	33
Route Wayfinding Signs-----	34
Lions Park Dirt Path-----	34
Grass Paths for Wheelchairs-----	35
Make Recreation Facilities ADA Accessible-----	35
Sidewalk Ramps-----	35
Third Street Bridge over Prairie River-----	36
Remove Sidewalk Trip Hazards-----	38
Crosswalk Improvements-----	38
Center Avenue and Main Street-----	38
First Street and Scott Street-----	39
Review Crosswalk Lighting Citywide-----	40

Bike Routes-----	41
River Bend Trail-----	42
Segment 1 - Foster Street and Emmerich Street-----	42
Segment 2 - Cottage Street-----	42
Segment 3 - Prospect Street and 10th Street-----	42
Segment 4 - Mill Street and Dunginski Road-----	42
Segment 5 - Pier Street and Merrill Memorial Forest-----	43
Segment 6 - Center Avenue/CTH K-----	43
Segment 7 - Sales Street-----	44
Segment 8 - Memorial Drive-----	44
Segment 9 - Riverside Avenue to Jefferson Elementary-----	44
Segment 10 - Sixth Street/STH 64 Alternative-----	45
Segment 11 - North Route, CTH G and Taylor Street-----	46
Segment 12 - Main Street/STH 64-----	46
Segment 13 - Grand Ave/STH 107-----	48
<i>Evaluation Recommendations</i> -----	49
Program Counts-----	49
Bike and Pedestrian Counts-----	49

POLICY RECOMMENDATIONS

Advertise Infrastructure Changes

Determine how individual or grouped infrastructure projects will be introduced, or advertised, to residents.

Time frame: Short term after an infrastructure project is completed.

Responsible party: Parks & Recreation Commission, Street Department.

Investments in infrastructure should be supported by promotional programs, such as bike-to-work days and bicycle training, Safe Routes to School programs, and other programs that facilitate bicycling, including bike sharing systems and those that accommodate bicycles on buses.

Create Sidewalk Plan

A citywide sidewalk inventory does not exist, but the annual ward inspection program does exist. Many neighborhoods throughout Merrill have partial sidewalks, either missing in mid-block, or whole blocks are missing sidewalks in neighborhoods that have sidewalks around most other blocks. This recommendation is to digitize the locations of existing sidewalks, and then to determine where the high priority sidewalks are needed. City codes may need to change too.

Time frame: Short term to create inventory, and Intermediate to implement sidewalk plan.

Responsible party: Street Department.

This recommendation includes:

1. Create a citywide GIS layer that identifies where every sidewalk is.
2. Upon GIS layer creation, review what neighborhoods should have sidewalks:
Roads To Have Sidewalks
 - a. All roads designated as truck routes (Map 3) should have sidewalks on both sides (unless one side of a block has no uses between intersections, or no reason for through pedestrian access.);
 - b. Other streets that serve as major pedestrian access routes to and from pedestrian traffic generators, see Map 5 (e.g. businesses, restaurants, schools, parks, & high density multifamily housing) [per Merrill Code Sec. 111-173];
 - c. All streets that have sidewalk along only a portion of a block between two intersections [per Merrill Code Sec. 111-173];
 - d. All streets that are functionally classified as Collector or Arterial that are also shown on Map 8 as having pinch points. This recommendation is only to place sidewalks (or 5-foot paved shoulders on rural roads) on both sides of each road section that is a pinch point on Map 8; and
 - e. Perform Safe Routes To School analysis at each elementary school to determine high priority roads to add sidewalks to.
3. Create a 5-year plan to install and remove sidewalk citywide, and to install ADA approved curb ramps that point in the direction of travel across roads, to bring the whole city up to an acceptable level of pedestrian friendliness.

Change New Sidewalk Width in Code

Change minimum sidewalk width from 4-feet to 5-feet in new residential areas. WisDOT's standard width for sidewalks with terraces is five feet and without terraces is six feet.

Time frame: Short term.

Responsible party: City Council.

Merrill Municipal Code Sec. 32-54, Sidewalks (4), states that sidewalks in residential areas shall be 4-foot wide. The minimum width that Safe Routes To School money will cover is a 5-foot wide sidewalk. If any block of a street has a sidewalk that is less than 4-feet wide in 50 percent or more of that block, then change the code to upgrade the sidewalk to 5-feet wide.

Allow Bikeway To Replace Sidewalk

Change Merrill Code to allow bikeway to also serve as a sidewalk.

Time frame: Short term.

Responsible party: City Council.

Merrill Municipal Code Sec. 111-173 states that bikeway construction does not replace the requirement to also have a sidewalk.

Remove Snow and Ice from Stange St Segment of River Bend Trail

Remove snow and ice from the River Bend Trail bikeway segment parallel to Stange Street.

Time frame: Short term.

Responsible party: River District Development Foundation, Streets Department.

The Stange Street segment of the River Bend Trail is projected to have high neighborhood pedestrian use to get to work. The River District Development Foundation owns the whole road right-of-way, because they purchased the railroad right-of-way, and Stange Street was built within it. Instead of having the City construct a sidewalk on Stange Street, the 10-foot width of the River Bend Trail will suffice as a bikeway and sidewalk within this area. The trail will be a convenient well used path for those who work nearby.

EDUCATION AND ENCOURAGEMENT RECOMMENDATIONS

Every road in Merrill except USH 51 is available for bicyclists to ride on. The bicycle is defined as a vehicle [340.01(5)]. The bicyclist is granted the same rights and is subject to the same duties as the driver of any other vehicle [346.02(4)(a)]. Figure 1 on page 3 shows that generally 60% of residents are "interested but concerned" about their vulnerability riding with traffic, and generally 30% of residents have no desire to bike, which means that 90% of the population probably drives or gets a ride most of the time. Teaching motorists to share the road and teaching bicyclists to ride safely will go a long way to helping everyone share the road.

Paint Bike Lanes and Sharrows As Part Of Public Education

Time frame: Short term.

Official bicycle routes are new in Merrill, so a refresher course on motorists sharing the road with bicyclists, and bicyclists understanding where to ride on the road are needed.

Painting bike lanes and sharrows on Collectors, Minor Arterials, and Major Arterials:

- Provide a continuous reminder to motorists that bikes are always allowed on the road; and
- Tell bicyclists the best place to be in the lane for safety and predictability.

Citywide Biking and Walking Encouragement Activities

Time frame: Short term.

One way to inform is through doing. A group of volunteers that wants to promote bicycling in Merrill could coordinate a variety of activities in Merrill.

1. Setting up bike rides creates excitement about bicycling, and improves a person's confidence when riding with traffic. Group rides are more visible to a motorist than a single bicyclist, which makes riding safer. This could be a regular weekly or monthly occurrence, or a few large events with "waysides" every few miles. All of these rides would be set up by a volunteer group of individuals working with the City or private property owners to get all the necessary approvals.



Source: Spokehaven.com

2. National Bike To Work, and Bike & Walk To School days are annual events that could be used to promote the opening of a new bike path or route, and bike education could occur within a week before the event.

Bike To Work Week – League of American Bicyclists has online resources for any group or agency to coordinate a successful event: <http://bikeleague.org/bikemonth>.

Bike & Walk To School Day – National Center for Safe Routes To School has online resources for any group or agency to coordinate a successful event: <http://www.walkbiketoschool.org/>. The Wisconsin Bike Fed will also assist communities with either event.

School Biking and Walking Encouragement Activities

Time frame: Intermediate.

School districts are asked to do more with less resources. The Omro School District in Wisconsin was faced with reduced staffing for bicycling programs, so they decided to incorporate bicycling into their Physical Education classes. Over a decade they have built up various bicycle education opportunities.

See success story in Attachment G. Consider using efforts in Ormo as an example.

Print Bike Routes on Tourism Map

Time frame: Short term.

Many visitors are coming to Merrill and asking for bike maps. Printing a bike map will show residents and visitors the best ways to bike to common destinations. Print bike route map with only approved and marked bike routes and trails.

Bicycle Education Classes

Time frame: Short term.

Share & Be Aware includes a variety of pedestrian, bicyclist, and driver education classes that are taught by The Wisconsin Bike Fed. These Share & Be Aware classes are paid for by a grant from WisDOT, so no local money is needed, but advanced registration with the Wisconsin Bike Fed is needed, as their classes are very popular.

Class descriptions and advanced registration available online:

<http://wisconsinbikefed.org/for-your-community/share-be-aware/classes/>

The lead party to complete or initiate the tasks is **bolded**.

Share & Be Aware Class	Responsible Parties
<u>Skills for Pedestrians</u> This class can be tailored for a senior citizen audience as they are at a higher crash risk, but is appropriate for all adults.	Community Enrichment Center, Merrill Housing Authority , Bike Fed.
<u>Go by Bike.</u> The course focuses on getting people to try biking for journeys less than 3 miles long.	Library , Bike Fed.
<u>Driver's Ed & Driver's Ed Refresher Course.</u>	Course providers , Bike Fed.
<u>Law Enforcement's Role in Promoting Bicyclist and Pedestrian Safety.</u>	Police , Bike Fed.

Update existing bicycle safety training for children by replacing bike rodeo with bike camp and family bike class, or Safety City.

A sampling of safety issues covered in Safety City classes are:

- **Traffic Safety:** Traffic lights, stop signs, pedestrian rules, cross walks, safety patrols
- **Stranger Safety:** Various situations involving strangers and what to do
- **Poison Safety:** Learn about dangers of poison and medicines
- **Water Safety:** Discuss safety around water
- **Fire Safety:** Meet a firefighter, learn about fire safety in your home
- **School Bus Safety:** Learn about bus safety, and how to follow driver's rules
- **Bicycle Safety:** We will be riding bikes and learning all about helmets

Class	Responsible Parties
Bicycle education in 3rd and 4th grades.	Police
Bicycle education at annual Children's Festival.	Optimist Club, Police, Park & Rec.

Education In Lieu of Punishment

Time frame: Short term.

Responsible party: Merrill Police, Municipal Court.

Some communities have found success with offering a bicycle and pedestrian education course as an alternative for bicyclists, pedestrians, and motorists who are first-time offenders of bicycle and pedestrian related rules of the road.

Bicycle Education Website

Time frame: Short term.

Responsible party: Merrill Parks & Recreation, Streets Department, Merrill IT, NCWRPC.

Each department in Merrill has their own set of web pages within the City's website. Adding bike and pedestrian information to the website under both the Parks & Recreation Department, and the Streets Department web pages (both would link to the same pages) would provide general safety and informational materials and videos to increase the level of biking and walking savvy among Merrill residents.

ENFORCEMENT RECOMMENDATIONS

Many laws are in the municipal code to keep people safe. A lack of strict compliance with those laws is often a reason why residents do not walk or bike to local destinations.

Roadway Design – Vision Zero Deaths

Where there is a history of traffic crashes (Map 4) or where there are pinch points (Map 8), consider what traffic measures to use to reduce perceived or actual danger with walking or biking on problem roads.

Time frame: Short term to Long term depending upon what traffic measure is chosen.

Responsible party: Streets Department, Merrill Police, WisDOT, Highway Department.

Research shows that lowering a speed limit without other improvements like road design changes or improved police enforcement does not work to slow traffic. Roadway design affects people's speeds.

Traffic Measures to slow speeds, deter distracted driving, and help make walking and biking more comfortable:

- Reduce the number of travel lanes (road diets);
- Reduce the width of travel lanes;
- Make crosswalks more visible;
- Paint bike lanes or urban shoulders where roads are already wide enough;
- Shorten crosswalks;
- Add raised median islands in the middle of busy streets as a refuge for pedestrians at crosswalks;
- Reduce turning radius at intersections, without restricting truck turns;
- Install traffic circles – usually done where residential street speeds are high;

Crosswalk Enforcement

Consider adding crosswalk enforcement into the annual rotation of police duties.

Time frame: Short term.

Responsible party: Merrill Police.

Crosswalk enforcement campaigns are an effective way to remind motorists of their duty to yield to pedestrians in crosswalks. A press release is usually associated with such campaigns to make the broader public aware of how to operate in the crosswalk areas in Merrill.

School Zone Speed Enforcement

Consider adding school zone speed limit enforcement into the annual rotation of police duties.

Time frame: Short term.

Responsible party: Merrill Police, local school, Streets Department.

Work with the Streets Department to make sure crosswalks are properly signed and marked, and then work with the school chosen for that year's speed limit enforcement campaign to provide additional education in the local school newsletter.



Sidewalk Snow and Ice Removal Enforcement

Enforce the Merrill sidewalk snow & ice clearing ordinance.

Time frame: Short term.

Responsible party: Every business and resident, Streets Department, Police Department.

Sidewalks are not useful in winter if they are covered with impassible amounts of snow and ice. Every business or resident on a corner lot should be reminded to keep their corner sidewalk ramps clear. If the sidewalk ramp is not cleared, then people in wheelchairs cannot access the sidewalk, and may need to use the nearest driveway to get off the road.



ENGINEERING RECOMMENDATIONS

Use the Wisconsin Bicycle Facility Design Handbook (WisDOT), the WisDOT Facilities Development Manual, the Manual for Uniform Traffic Control Devices (MUTCD), the National Association of City Transportation Officials' (NACTO) Urban Bikeway Design Guide, the WisDOT WI Guide to Pedestrian Best Practices, and other guides and regulations when designing any bike or pedestrian accommodations mentioned in this plan.

Sidewalk Maintenance

Inspect sidewalks in Merrill for impassible cracks, tripping hazards, and overgrown vegetation, and then create a multi-year improvement plan as part of the annual ward inspection program.

Time frame: Intermediate.

Responsible party: Streets Department.

Roads are inspected and slated for annual improvements. Sidewalks as a transportation facility also deserve inspection and improvements listed in a multi-year improvement plan.

See "Create Sidewalk Plan" under Policy Recommendations.

Pedestrian Signals

Reprogram the pedestrian signal phase to be automatic during every traffic light cycle, and to provide a Leading Pedestrian Interval.

Time frame: Short term.

Pedestrian pushbuttons are detectors intended to provide pedestrians with the ability to activate a pedestrian signal and reassure pedestrians that they will receive a crossing indication. However, only approximately 50 percent of pedestrians at intersections activate pushbuttons to cross at the intersection. To improve potential use of the pushbuttons and compliance with pedestrian signals, pushbuttons should be designed and installed to maximize convenience, conspicuity, and communication for pedestrians. Section 4E.08 of the MUTD provides specific guidance on the location of pushbuttons at traffic signals.

Leading Pedestrian Interval (LPI) - An LPI gives pedestrians an advance walk signal before motorists get a green signal, giving the pedestrian several seconds to start walking in the crosswalk before a concurrent signal is provided to vehicles. This makes pedestrians more visible to motorists and motorists more likely to yield to them. Typical LPI settings provide 3 to 6 seconds of advance walk time. LPI has been used successfully in several places, such as New York City, for two decades and studies have demonstrated LPI reduces conflicts and crashes for pedestrians.

LPIs enhance pedestrian visibility and reinforce their right-of-way over turning vehicles.

Bicycle Parking

Create a bicycle parking ordinance to require certain amounts of bike parking and the location of bike parking at every employer within a given time.

Time frame: Short term to create a bike parking ordinance.

Time frame: Intermediate to implement bike parking ordinance.

Installing bike racks by each employer, both public and private, or conveniently located in a commercial district, would provide secure parking for residents and visitors.

A set of bicycle parking recommendations from the Association of Pedestrian and Bicycle Professionals (APBP) is summarized in Attachment F. The amount of space needed for a bike rack, and how to determine good bike rack designs are included in those guidelines.

Warehouses, and other employers, may choose to use a closet or create a fenced in bicycle parking area within their building for employees to store their bikes, in addition to providing some public bike parking.

Some considerations:

- Will the bicycle be secure in the storage area?
- Will anyone with a bicycle in the storage area be able to get their bike out without tipping over the remaining bicycles in the area?
- Is there a shower facility and gym lockers available for bicyclists to clean up in? A shower and lockers are not required, but some riders may need them to maintain their professional appearance to customers.

Bike Racks on Buses

Add exterior bike racks to Merrill-Go-Round buses.

Time frame: Intermediate.

Many public transportation agencies are providing bicycle racks on buses, enabling what might be a long bicycling trip to be shortened by using transit for part of the journey. In 2001, only 32 percent of buses in the U.S. had exterior racks for bicycles, but that figure rose to 72 percent by 2010. Bike parking is another key aspect for integrating bicycling with public transit.



Safe Routes To School

Create Safe Routes To School plans for each elementary and middle school to increase the number of kids walking and biking to school.

Time frame: Short term.

School districts to work with WisDOT and NCWRPC to perform a Safe Routes To School analysis at each school to determine what engineering, encouragement, education, enforcement, and evaluation tasks need to be completed to encourage more students to walk and bike to school.

Route Wayfinding Signs

Assemble an advisory group to work with the Streets Department or Parks & Recreation Commission on choosing wayfinding sign types, colors, and what the routes should be called, or what locations should be listed on wayfinding signs. Common destinations placed on bicycle wayfinding signs include parks, schools, and other major destinations within the City.

Time frame: Short term.

Review if a designated bicycle route needs upgrades, or has “favorable conditions.” Once the upgrades are done, or favorable conditions exist, then install signs. “Favorable conditions” is defined for Merrill as having “good” or “moderate” conditions on Map 1; so a bike route with favorable conditions may be signed (see Map 1 Conditions Described box). If a road is not rated on Map 1 for bicycling conditions, then its rating is “good.”

There are two parts to bike route wayfinding:

1. The route name itself, shown on a map, will tell users where they are; and
2. Places with or without mileages may be placed on additional signs.

Always follow MUTCD standards for mounting height and lateral placement from edge of path or roadway. Additional guidance and standards clarification are provided by the NACTO Urban Bikeway Design Guide. Use the WisDOT regional bike and pedestrian coordinator as a resource for planning and designing bike and pedestrian facilities on state and federally funded projects.

Lions Park Dirt Path

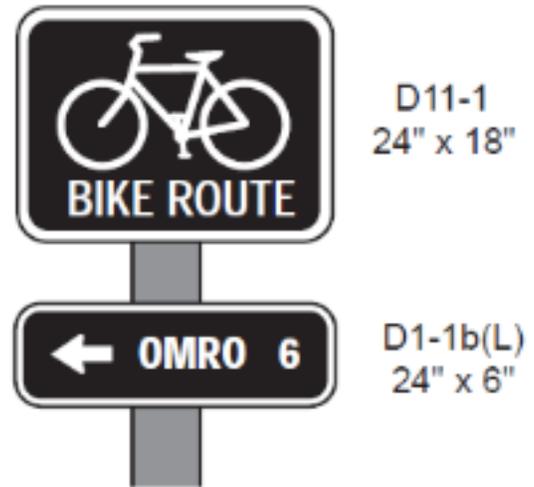
Create a secondary path down this hill that is manageable for more abilities, including wheelchairs.

Time Frame: Intermediate.

The key to an enjoyable average tread grade is to keep it as low as reasonable while fulfilling the objectives of the trail. Designing the average grade to 4-6% may necessitate creating a switchback or serpentine path and adding some near level sections for wheelchairs to pause before continuing down or up the path. Review Trail Design and Construction on AmericanTrails.org for additional guidance.

Mark the original dirt path and the secondary path per a nationally recognized standard like the IMBA Trail Difficulty Rating System (e.g. white circle to double black diamond), other useful standards also exist.

FIGURE 15:



Bike route sign (top)
Bike destination sign (bottom)

Source: WisDOT Bicycle Facility Design Handbook



Source: ICORR

Grass Paths for Wheelchairs

Pave grass paths for wheelchair accessibility (Attachment K).

Time Frame: Short term.

Grass paths are often too soft to allow wheelchairs to travel on them without getting stuck. These paths should be paved, so wheelchairs may pass when the ground is saturated. If asphalt or concrete are not used, then pave the path with crushed rock to a minimum of 5-feet, and design the path so water does not sit on it.

Make Recreation Facilities ADA Accessible

Create a plan for how and when each recreational facility citywide will become ADA accessible.

Time Frame: Short term.

For example, add a sidewalk to connect the Thrid Street sidewalk to the basketball court along the Prairie River.

This recommendation is also in the Merrill Outdoor Recreation Plan.



Solid line is proposed sidewalk.

Source: Google

Sidewalk Ramps

Install sidewalk ramps on both sides of each crosswalk, and line up the ramps to direct people straight across the street.

Time frame: Long term to replace ramps throughout the City.

Crosswalk must have ramps on both sides, even if a driveway is nearby. Additionally, visually impaired individuals have a difficult time identifying where the crosswalk is. Ramps are useful for visually impaired, wheelchair users, and parents with strollers.



Add a sidewalk ramp that is separated from the driveway.



Double sidewalk ramps.

Source: NCWRPC

Third Street Bridge Over Prairie River

Make the sidewalk along the Third Street Bridge over the Prairie River wheelchair accessible and add bike lanes to the bridge.

Time Frame: Short term to install sidewalk ramps and bike lanes.

Time Frame: Intermediate to widen the sidewalk on the bridge.

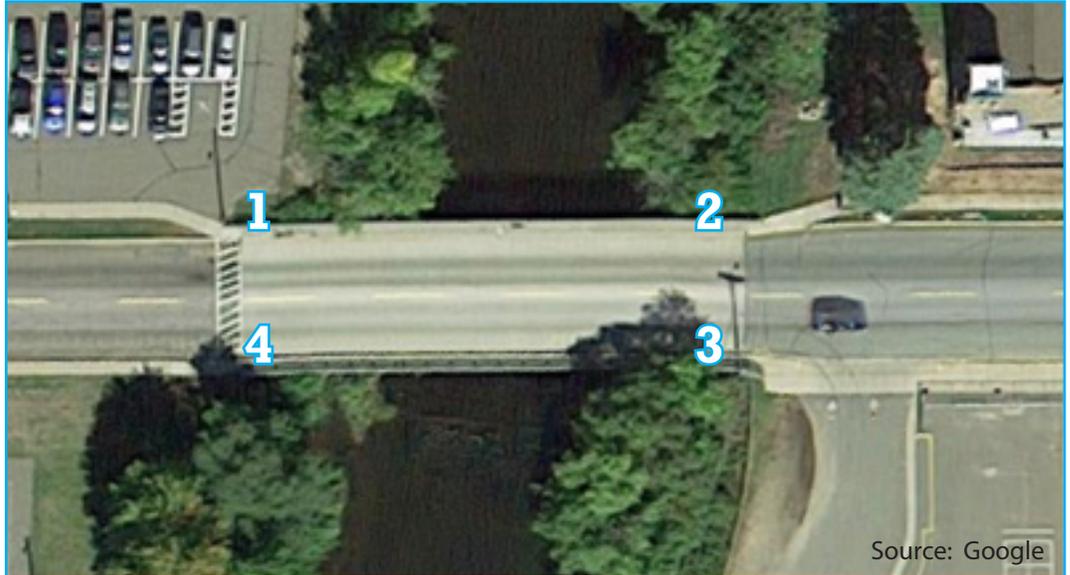
The Third Street Bridge over the Prairie River is not wheelchair accessible, and ramps at crosswalks on both sides of the bridge are missing.



Source: NCWRPC

- A** = Distance between car brace cement and crease between sidewalk and curb.
- B** = Distance between car brace cement and curb face.
- C** = Distance 1-inch away from car brace cement and curb face.

The minimum width for an ADA-compliant sidewalk is **36 inches**; and 32 inches at any one point.



Source: Google

Using the A, B, and C distances from the opposite page, the table below shows the current widths of the sidewalks at the four marked corners of the Third Street Bridge.

	1	2	3	4
A	34"	25"	23"	33"
B	40"	31"	29"	40"
C	47"	39"	36"	47"

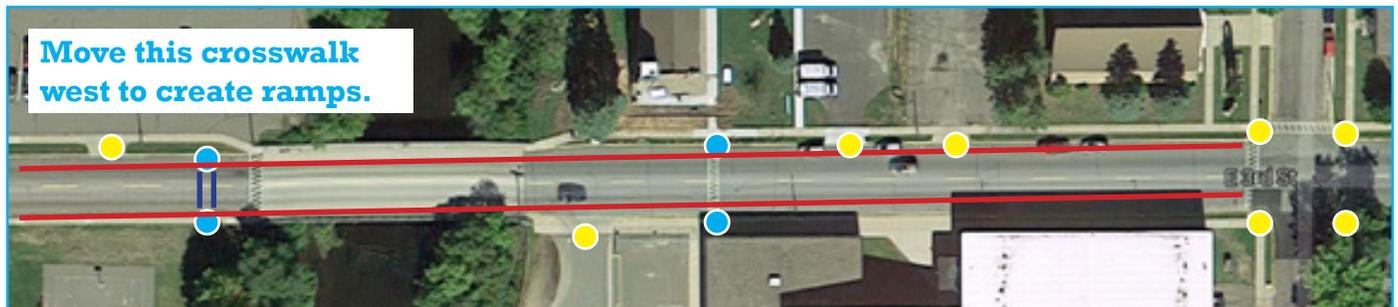
Short Term Recommendation: Install ADA crosswalk ramps, and paint bike lanes. Wheelchairs will need to use these bike lanes to cross the Prairie River, because points #2 and #3 on the bridge sidewalk are wide enough for a wheelchair.

Long Term Recommendation: Repair the pitted sidewalk surface on the bridge, and widen the bridge sidewalk to at least 5-feet on both sides of the bridge.

Street Improvements

Add ramps and bike lanes (Logan St west to Stange Park driveway) as per below:

- = Proposed Sidewalk Ramp
- = Existing Sidewalk Ramp or Driveway
- = Potential Bike Lane
- || = Potential New Crosswalk



Source: Google

Remove Sidewalk Trip Hazards

Use saw cutting or grinding to eliminate sidewalk tripping hazards when the concrete slab is still in good condition.

Time Frame: Short term.

Sidewalks are reviewed for tripping hazards in Merrill as part of the *annual ward inspection program*. Managing ADA compliance, risk, and budget is the balancing act necessary to provide safe sidewalks in any community.

Four common methods to remove trip hazards include:

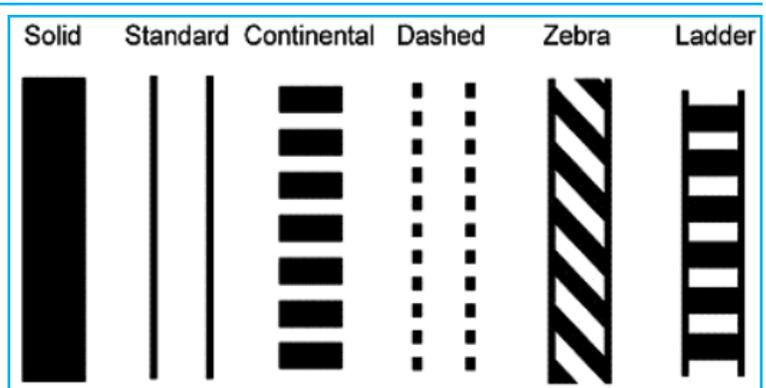
1. Saw cutting (permanent fix);
2. Grinding (permanent fix);
3. Patching and ramping (temporary fix); and
4. Removing and replacing concrete slabs (permanent fix).

Crosswalk Improvements

Increase visibility with new crosswalk marking patterns.

Time Frame: Short term.

Where either the Streets or Police Departments determine that extra visibility is needed for a crosswalk, paint a more visible crosswalk style (e.g. Continental, Zebra, or Ladder) as seen at right:



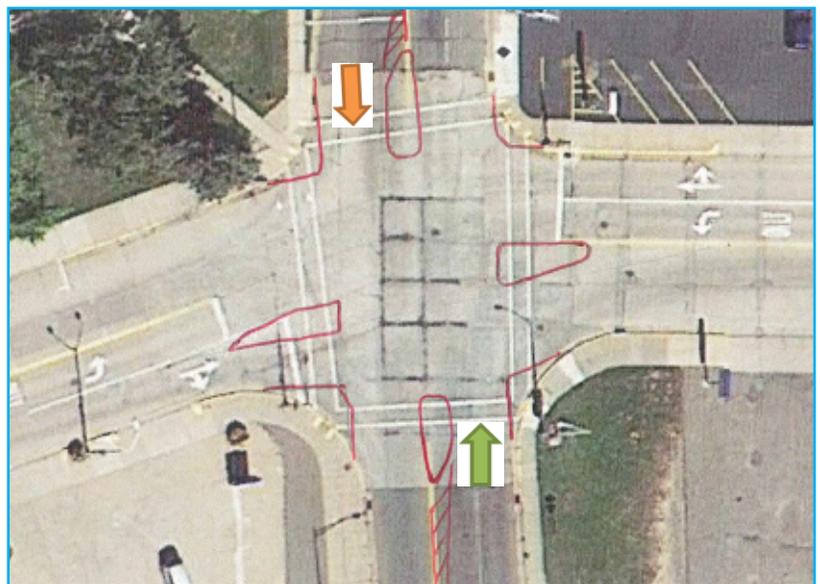
Center Avenue and Main Street

Revise the Center Ave and Main St intersection to improve pedestrian crossings.

Time Frame: Intermediate.

Add medians that are at least 6-feet wide (WisDOT's minimum width) for pedestrians to rest while crossing each street. Design medians so that trucks can turn onto each street.

Red lines in drawing at right represent new medians and curb extensions with new ADA approved sidewalk ramps pointing in the direction of travel.



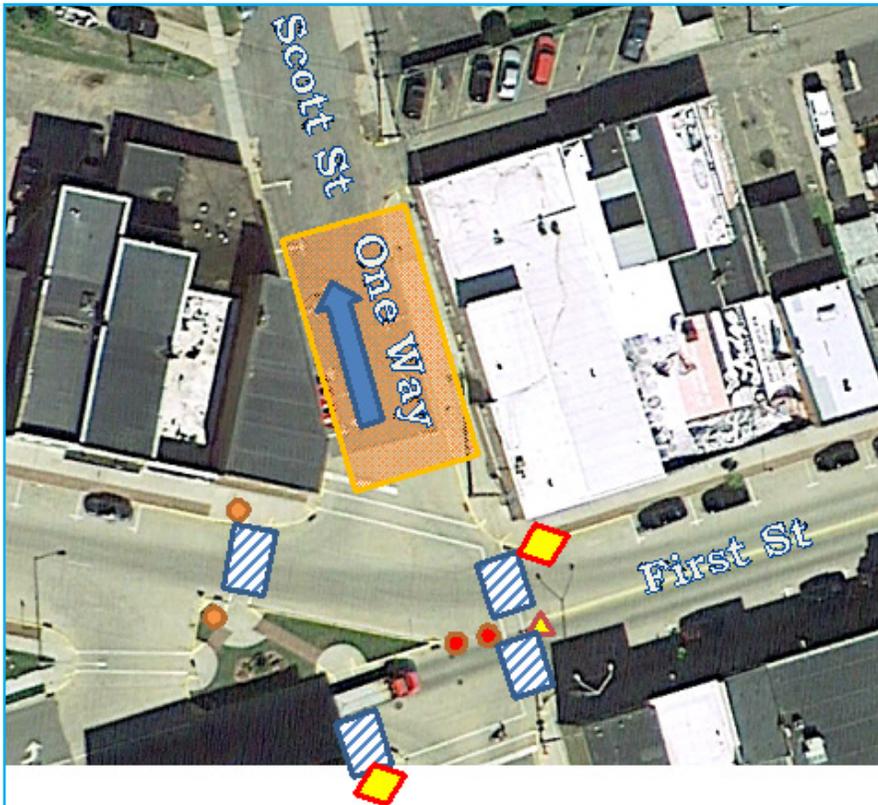
- ↓ = Replace 2 travel lanes with 1 travel lane and a bike lane.
- ↑ = Replace 1 travel lane and a turn lane with 1 travel lane and a bike lane.

First Street and Scott Street

Revise the First St and Scott St intersection to improve pedestrian crossings.

Time Frame: Short Term

Make part of Scott St one way (see graphic) and allow diagonal parking on that section of the road.



-  = Flashing LED beacon pedestrian crosswalk (Figure A)
-  = Flexible delineator with reflective band (Figure B)
-  = Double-sided YIELD Crossing panel with portable base (Figure C)
-  = Paint high visibility crosswalk (such as Continental, Zebra, or Ladder from Crosswalk Improvements recommendation)
-  = Replace "No Left Turn" signs with pedestrian crosswalk and arrow signs (W11-2 & W16-7P). May place a double-sided "No Left Turn" sign in the median.

Figure A: Crosswalk Beacon Assembly

Install a Double Light Rapid Flash Beacon assembly on both sides of crosswalk, on west side so pedestrians can see when lights are flashing.

Make sure that beacons automatically adjust their brightness with daylight conditions, or day and night.

Includes:

- 2 amber LED beacons;
- 2 microwave pedestrian detectors to automatically actuate signal;
- 1 pedestrian sign (W11-2);
- 1 arrow sign (W16-7P); and
- wiring to connect two of these assemblies to electricity and to each other on both sides of the crosswalk.



Do not install a Rectangular Rapid Flash Beacon (RRFB). Due to the brief time that drivers will have to view this assembly, the brightest RRFBs are too small and dim to adequately warn drivers of pedestrians in the crosswalk.



Figure B: Flexible Delineator

Install 3 of these flexible delineators with reflective bands in the middle of Scott St to reinforce that through traffic is not allowed.

Flexible delineators will still allow emergency vehicles to run over the posts.



Figure C: YIELD Crossing Panel

Install a double-sided YIELD Crossing panel with portable base on the double yellow line, just east of the crosswalk. This location will reinforce that left turns are not allowed.



Review Crosswalk Lighting Citywide.

Most crosswalks are colocated with intersections. Lighting levels should allow detection of pedestrians in enough time to yield to pedestrians at crosswalks.

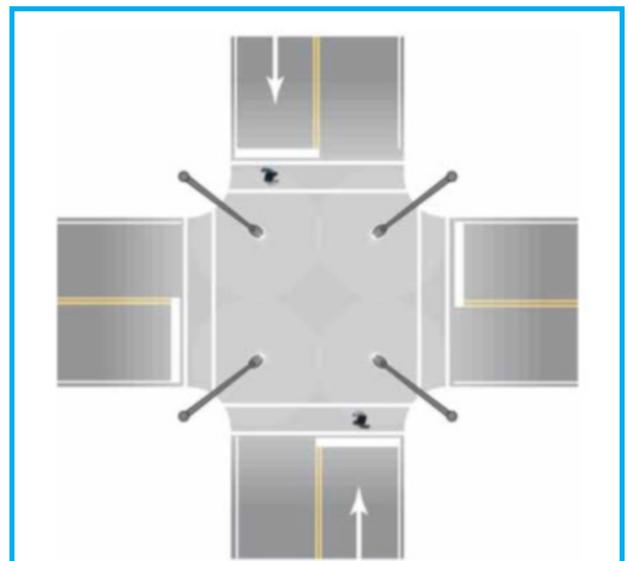
Time frame: Long term.

Begin with intersections:

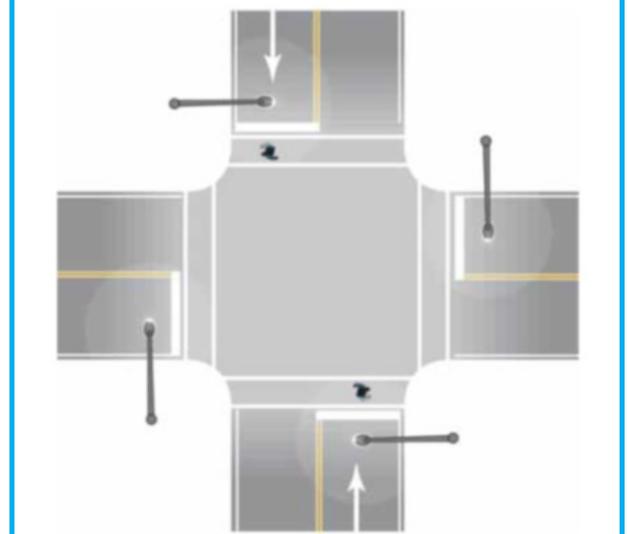
- Identified as pinch points on Map 8;
- Identified by Safe Routes To School;
- Downtown intersections; and
- River Bend Trail crossings.

FHWA Research Findings [FHWA-HRT-08-053]

- A vertical illuminance level of 20 lx measured at 1.5 m (5 ft) from the road surface allowed drivers to detect pedestrians in midblock crosswalks at adequate distances under rural conditions.
- A higher level of vertical illuminance may be required for crosswalks when:
 - » There is a possibility of continuous glare from opposing vehicles.
 - » The crosswalk is located in an area with high ambient light levels.
 - » The crosswalk is located at a lighted intersection.
 - » The luminaire selected will influence the best mounting location and height of the luminaire with respect to the crosswalk.
- The vertical illuminance level that allowed drivers to detect pedestrians at adequate distances was the same for high pressure sodium and metal halide sources; however, MH or other white light sources may provide better facial recognition and comfort for pedestrians.



Traditional intersection lighting layout.



New design for intersection lighting layout for crosswalks.

Source: FHWA

Bike Routes

Recommendation: Designate bike routes to cover the whole city.

Time frame: Intermediate to implement bike routes.

All of the proposed bike routes on Map 10 and recommended improvements on Map 11, and Attachments H & I, will need City Council approval and Streets Department implementation.

When scheduling a repaving project, check to see if it is a designated segment on Map 10 or 11, then check for the recommended improvement under that segment's description on pages 42-48.

Each proposed bike route becomes a bike route when the City:

1. Officially designates by ordinance one of the segments or part of a segment named below (e.g. Segment 1) per WI State Statute 349.23; and
2. Installs bike route signs (see recommendation: "Route Wayfinding Signs"), and marks the pavement if necessary to make "favorable conditions" for bicycling.

A bike route may be officially designated when there are "favorable conditions" for bicycling. If a route is inherently dangerous, then it should not be officially designated until it becomes acceptable to bicycle on. "Favorable conditions" is defined for Merrill as having "good" or "moderate" conditions on Map 1; so a bike route with favorable conditions may be signed. If a road is not rated on Map 1 for bicycling conditions, then its rating is "best."

Map 1 Condition Descriptions

"*Best*" conditions for bicycling include roads with light volumes of traffic and may have many other favorable factors such as good sight distance and minimal truck traffic. This classification also includes highways approaching a moderate level of traffic but with paved shoulders.

"*Moderate*" conditions for bicycling are roads that have moderate traffic volumes for the amount of pavement width present. This classification may also include county and state highways with paved shoulders, but slightly more traffic. Due to moderate traffic volumes, less experienced cyclists should use care on these segments.

"*Undesirable*" conditions for bicycling include roads with moderately high traffic volumes with no paved shoulders, or high traffic volumes with narrow paved shoulders, and may have moderate to high truck traffic. This classification could also include some moderate volume roadways, but with an assortment of negative factors for bicycling. Bicyclists should try to plan around these roads and or use considerable caution when using them. Bicyclists should have appropriate amounts of expertise with these types of riding conditions if choosing these roads.

Bike Route Descriptions:

RIVER BEND TRAIL

The River District Development Foundation is coordinating bikeway development along with the City. WisDOT and DNR both have trail building standards to follow for the enjoyment of all users. This recommendation is for trail builders to follow WisDOT and DNR trail standards when constructing any section of the trail, regardless of whether WisDOT or DNR money is used or not.

SEGMENT 1 – FOSTER STREET AND EMMERICH STREET

Time frame: Short term.

This on-street route connects Otts Park to other routes. No improvements are necessary beyond posting bike route signs.

SEGMENT 2 – COTTAGE STREET

Time frame: Short term.

Cottage Street is the north-south alternative to using State Street, which is a truck route. Parking was recently removed from one side of Cottage Street. Since this road will have bicycle traffic from the River Bend Trail, then in addition to installing Trail and bike route signs, paint shared lane markings (sharrows) per MUTCD standards, in the curb lane where there is no on-street parking, and paint sharrows outside of the curb parking lane on the other side of the road.

SEGMENT 3 – PROSPECT STREET AND 10TH STREET

Time frame: Short term.

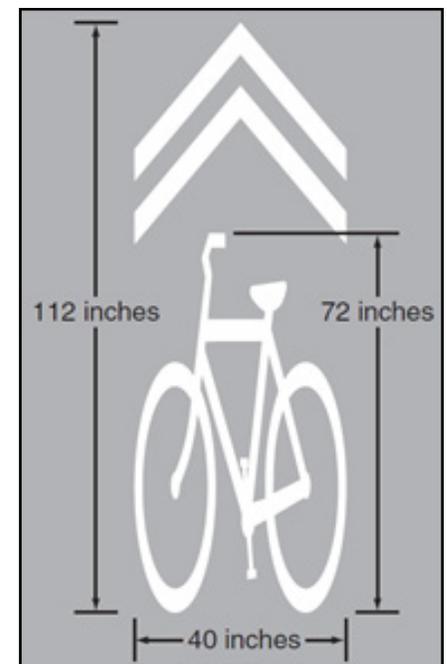
Prospect Street connects Kate Goodrich Elementary School, and Third Street, south to the River Bend Trail. The only improvement needed is to improve how Prospect, north of STH 107, intersects with STH 107. Part of this intersection creates blind corners and high speed turns. See the #5 diagram in Attachment H for the intersection improvement.

SEGMENT 4 – MILL STREET AND DUNGINSKI ROAD

Time frame: Short term.

Mill Street connects downtown with a local scenic route out of the City to connect with CTH K. No improvements necessary beyond posting bike route signs.

FIGURE 16: SHARROW



Source: MUTCD

SEGMENT 5 – PIER STREET AND MERRILL MEMORIAL FOREST

Time frame: Intermediate.

Pier Street is a main north-south street that becomes CTH JJ out of the City, which leads to the Merrill Memorial Forest. The only improvement is to add 5-foot asphalt paved shoulders to Pier Street from the north end of the Prairie River bridge, north to Taylor Street. See Figure ___ to pave an extra space for bicyclists to cross the railroad tracks.

When the County repaves CTH JJ, this recommendation is to add 5-foot asphalt paved shoulders from Taylor Street north to the end of the double yellow center line (no passing zone), and then to widen the remaining pavement to at least 24-feet wide, if paved shoulders are not added.

SEGMENT 6 – CENTER AVENUE / CTH K

Time frame: Short term.

Center Avenue was USH 51 before the current freeway was constructed. This recommendation is to add a bike lane on both sides of Center Ave from Joe Snow Rd north across the Wisconsin River Bridge up to the Main Street turn lane. Add a sharrow at the end of the northbound bike lane. Begin bike lane again on both sides of Center Ave, from Main St to bike ramp onto/off of sidewalk in roundabout. Add a “bicycles may use sidewalk” sign on a post just before the bike ramp on all four sides leading into the roundabout. Also, change Merrill’s Municipal Code to allow all bicyclists to use the sidewalk within the roundabout.

North of the roundabout on Center Ave to Lake Street, perform a road diet by reducing the 4 travel lanes, to 2 travel lanes, a two-way center turn lane, and curb bike lanes on both sides. Keep the current lane configuration from Lake St to 14th Street (CTH G), and paint sharrows per MUTCD in the curb area on both sides.

On CTH K, from CTH G north to Duginski Rd, paint bike lanes on both sides. On CTH K, from Duginski Rd north to Pope Rd, add 5-foot wide asphalt shoulders to both sides. Adding the bike lanes on both sides of CTH K will reinforce to motorists that bicyclists may be in the area. This will provide a safe space to bike within the existing road pavement.

FIGURE 17: BICYCLES MAY USE SIDEWALKS



Source: NCWRPC

SEGMENT 7 – SALES STREET

Time frame: Short term.

Sales Street, north of STH 64, is wide enough to accommodate two travel lanes and two parking lanes. The parking lane is not heavily used on this street, so no improvements are necessary beyond installing bike route signs. If speeding becomes a problem on this road, then painting an “urban shoulder,” which is a white line to create 10-foot travel lanes, may slow traffic down due to drivers perceiving the road to be narrower. This urban shoulder would automatically allow parking (unless a no parking zone is created) and bikes to operate in this area without additional signage.

Sales Street south of STH 64 is wide enough for one travel lane if cars are parked on both sides. Add bike route signs high enough to be seen over parked cars, and choose posts just after driveways or roads where parked cars would not obstruct the sign visibility.

SEGMENT 8 – MEMORIAL DRIVE

Time frame: Short term.

Memorial Drive, north of STH 64, is wide enough to accommodate two travel lanes and two parking lanes. The parking lane is not heavily used on this street, so no improvements are necessary beyond installing bike route signs. If speeding becomes a problem on this road, then painting an urban shoulder, which is a white line to create 10-foot travel lanes, may slow traffic down due to drivers perceiving the road to be narrower. This urban shoulder would automatically allow parking (unless a no parking zone is created) and bikes to operate in this area without additional signage.

Memorial Drive south of STH 64 is wide enough for one travel lane if cars are parked on both sides. Add bike route signs high enough to be seen over parked cars, and choose posts just after driveways or roads where parked cars would not obstruct the sign visibility.

SEGMENT 9 – RIVERSIDE AVENUE TO JEFFERSON ELEMENTARY

Time frame: Intermediate.

This is a low traffic volume bike route, south of the Wisconsin River, that connects Center Ave with Jefferson Elementary and continues west to STH 64 out of the City.

Map 8 shows a couple of pinch points on both ends of Riverside Avenue.

To make these pinch points **bicycle friendly**, paint sharrows in travel lanes of Riverside Ave, between State St and just east of Schultz Street due to parked cars often using the parking lane, and then also paint sharrows on the road in front of the athletic center – paint westbound sharrows in curb zone per MUTCD, and paint eastbound sharrows in curb zone per MUTCD until on-street handicapped parking is allowed where sharrows should then be painted in the travel lane per MUTCD.

To make these pinch points **pedestrian friendly**, install sidewalk on at least one side of Riverside Ave (both sides would be best), between State St and Schultz Street due to parked cars often using the parking lane, and then also install sidewalks on both sides of Riverside Ave from Center Ave west to the last driveway of the athletic center parking lots on either side of the road, allowing each driveway to act as the pedestrian ramp to the road.

SEGMENT 10 – SIXTH STREET/STH 64 ALTERNATIVE

Time frame: Short term.

This route was chosen as an alternative to riding on STH 64 from Park Ridge Avenue to STH 107 (Grand Ave).

Map 8 shows that 3rd St, between Center Ave and Grand Ave, is a pinch point for bicyclists due to high traffic volumes (but not as high as STH 64) and the allowance for parking on both sides. If parking was removed from one side, and bike lanes were added to both sides, then 3rd Street would provide bicyclists more confidence with using this road.

Due to half of Third Street identified as a bicycle pinch point on Map 8, then the STH 64 Alternative route was moved to Sixth Street.

For most of this bike route, only posting bike route signs is needed.

On Sixth Street, parking is allowed on both sides, but the traffic volume is low. Due to expecting a high amount of bike traffic on Sixth Street this road's recommendation includes:

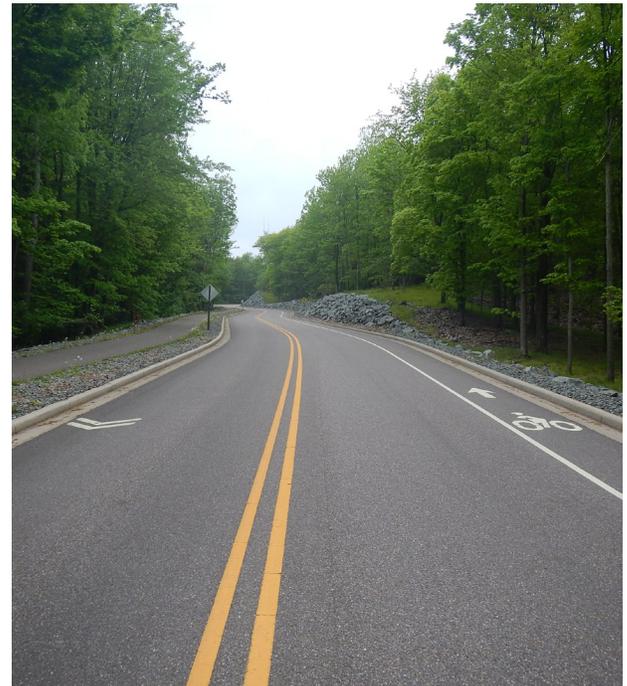
- Paint the center line of sharrows 11 feet away from the curb in each direction;
- Review where stop signs are necessary, and which stop signs may be replaced with yield signs to reduce the amount of complete stops that bicyclist would be required to make;
- If traffic on Sixth St and cross traffic streets are moving faster than the posted speed limits, then consider replacing stop signs with yield signs and adding traffic circles to the middle of the intersection. Neighborhood traffic circles can include a paved apron or mountable curb to accommodate the turning radii of larger vehicles like fire trucks or school buses. Larger circles should include splitter islands (painted on the pavement) at the approaches.

Since one block of Sixth St and one block of Logan St, by Athletic Park, are gravel roads, then until they are paved, re-route this bike route south a block onto Fifth St, and then back to Logan St, and then down to Third Street. Re-inforce where the route is by painting the center line of sharrows 11 feet away from the curb in each direction on Blaine St, Fifth St, and Logan Street.

The Third St bridge over the Prairie River is not ADA accessible for wheelchairs. To provide immediate space for wheelchairs to cross the Prairie River, paint bike lanes on Third Street, from Logan St west to the old pool's parking lot driveway. Paint a bike lane going up Parkway Dr and paint sharrows coming down Parkway Dr (see #2, Attachment H). Bikes move closer to traffic speed going down hills. (Figure 18)

On Merrill St, make changes per Panel #2 in Attachment H, and paint sharrows on both sides.

FIGURE 18:



Source: NCWRPC

SEGMENT 11 – NORTH ROUTE, CTH G AND TAYLOR STREET

Time frame: Intermediate

This route crosses on the north side of Merrill from STH 17, west to the MARC. In addition to installing bike route signs, pave 5-foot shoulders onto both sides of CTH G, from Memorial Drive east to STH 17 – but do not mark these shoulders as bike lanes. This is an ATV route, and ATVs must remain on the paved surface, so these paved shoulders will benefit bicyclists and ATVers. For CTH G west of Memorial Drive, request an exception from WisDOT to modify the two-way center turn lane from 14-feet wide to 12-feet wide. This extra lane width may be used to paint at least a 3-foot wide (plus gutter width) urban shoulder for bicycling on both sides.

Center Avenue’s recommendations are under Segment 6’s description.

Pier Street’s recommendations are under Segment 5’s description.

On Taylor Street, bike lanes exist from Pier St to Jefferson Street. This recommendation is to extend those bike lanes west until Taylor Street intersects with STH 107.

SEGMENT 12 – MAIN STREET/STH 64

Time frame: Short term.

Bikeability of Roads, Map 1, shows most of STH 64 in Merrill is either rated “moderate” or “undesirable” for bicycling. These recommendations are designed to make STH 64 safer for bicyclists and possibly change the rating to “moderate” for the whole length within the existing roadway surface. Map 3 shows that STH 64 is a designated long truck route, meaning that the largest trucks that can operate in Wisconsin can operate on this road. WisDOT requires that a travel lane in each direction on STH 64 must remain 12-feet wide. Due to truck traffic, this road may not become the “best” conditions for bicycling. Proper bicyclist education along with engineering changes will still make STH 64 an acceptable road to bicycle on.

Main Street east of Stuyvesant St is a 4-lane road out to just past Eagle Drive, then Main St becomes a 4-lane divided highway into the USH 51 interchange.

The 2013 STH 64 / Pine Ridge Avenue, Access Safety Study, analyzed the potential future safety and operational capacity of traffic leading into this intersection. Bicycle and pedestrian needs were taken into account as part of the study too. WisDOT indicates that road diets from four lanes down to three lanes have been very successful on roads with AADT less than 17,500, and even up to 25,000 AADT with an engineering study. Due to an actual AADT of 8,900 and projected AADT of 14,500-15,000 in 2043, Main St is a good candidate roadway for a road diet.

Recommendation is to perform a road diet on Main Street east of Stuyvesant St out to just past Eagle Drive. A road diet for this roadway would convert the undivided 4-lane roadway into two travel lanes, a center turn lane, and two outside bike lanes.

Recommendation for STH 64 as it winds through Stuyvesant St and 1st St:

- Allow bicyclists to use the sidewalks through these intersections; and
- Paint sharrows in these intersections per Figure 19.

Recommendation for STH 64, west of Center Avenue to Polk Street:

- Paint bike lanes or sharrows, and install signs per Attachment I diagrams.

Recommendation for STH 64, between Polk St and STH 107 intersection:

- Paint bike lanes or sharrows, and install signs per Panels #1, 3, & 4 in Attachment H.

Recommendation for STH 64, between Polk St and STH 107 intersection:

- Paint bike lanes or sharrows, and install signs per Panels #1, 3, & 4 in Attachment H.

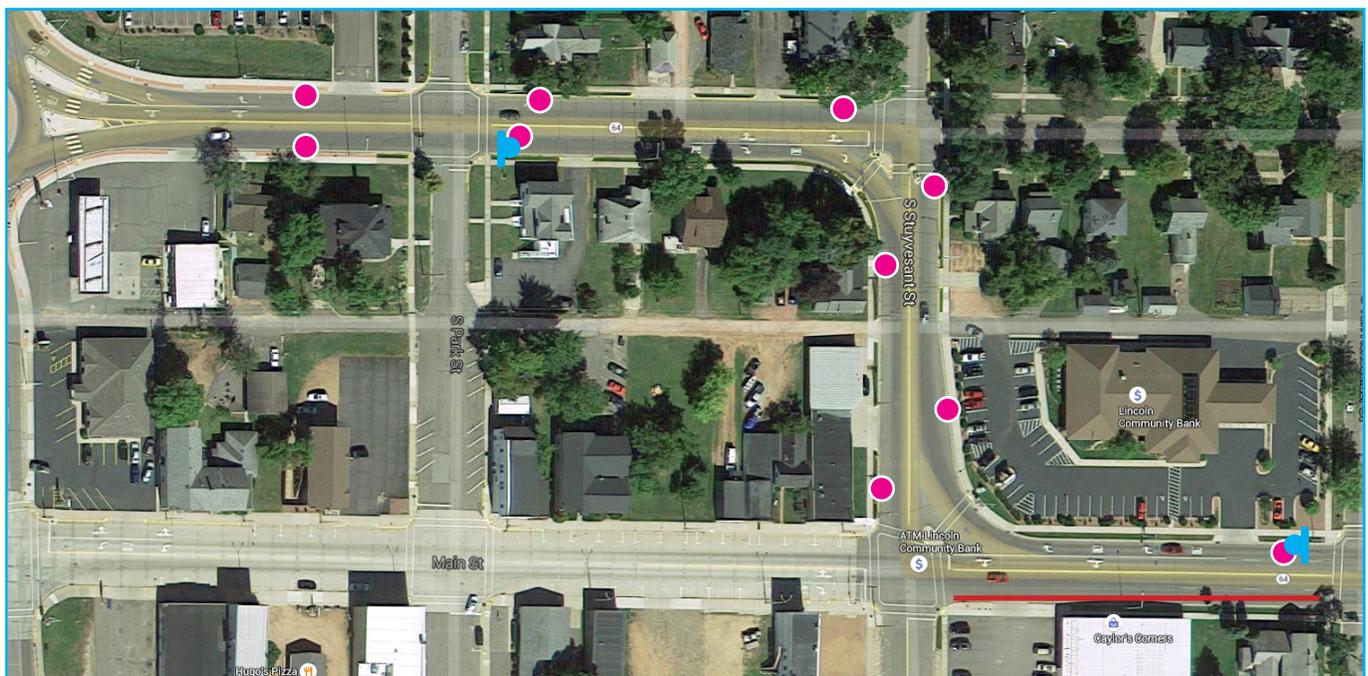
Recommendation for STH 64, between the Prairie River Bridge and the Wisconsin River Bridge:

- Replace on-street parking, except between Prospect St and Genesee St, with bike lanes, and paint sharrows per “Recommendation for Hwy 64 between Rivers” in Attachment J.

Recommendation for STH 64, from Cottage St west to Glen Dr:

- Replace on-street parking with bike lanes.
- Where on-street parking will remain, paint an urban shoulder, which is a solid white line painted 12-feet away from the roadway center line. Urban shoulders provide space for parking, and when cars are not there it may be used by bicyclists.
- On the west bridge over the Wisconsin River, paint a 3-foot urban shoulder to maintain the 12-foot travel lanes. Long term recommendation is to widen the west bridge’s deck to provide for 12-foot travel lanes and 6-foot bike lanes.

FIGURE 19: STH 64 CURVE BIKE MARKINGS



- = Sharrows
- = Potential Bike Lane
- ➡ = “Bicyclists May Use Sidewalk” Sign (Figure 17)

Source: NCWRPC

ROAD DIET

Road Diets are a safety-focused alternative to a four-lane, undivided roadway. The most common type of Road Diet involves converting an existing four-lane, undivided roadway segment that serves both through and turning traffic into a three-lane segment with two through lanes and a center, two-way left-turn lane (TWLTL). The reclaimed space can be allocated for other uses such as bike lanes, pedestrian refuge islands, bus lanes and parking. The benefits of Road Diets include:

- **Safety.** Road Diets can make the roadway environment safer for all users. Studies indicate a 19 to 47 percent reduction in overall crashes when a Road Diet is installed on a previously four-lane undivided facility. For pedestrians, Road Diets result in fewer lanes to cross and provide an opportunity to install refuge islands that slow vehicles in the midblock crossing area, which is where 70 percent of pedestrian fatalities occur. Four lane to three lane road diets reduce vehicle travel speeds and reduce the number of turning movement conflicts.
- **Low Cost.** Road Diets make efficient use of the roadway cross-section. The majority are installed on existing pavement within the right-of-way. When planned in conjunction with reconstruction or simple overlay projects, the safety and operational benefits of Road Diets are achieved essentially for the cost of restriping pavement lanes. Striping can also be ground of and the whole road repainted.
- **Quality of Life.** Road Diets can make shared spaces more livable and contribute to a community-focused, Complete Streets environment. On-street parking and bike lanes can also bring increased foot traffic to business districts.

SEGMENT 13 – GRAND AVE/STH 107

Time frame: Short term for repainting crosswalks.

Time frame: Long term for reconfiguring intersections.

Grand Avenue/STH 107 was laid out in a 45 degree angle from the north-south and east-west road grid. With such a layout comes acute and obtuse angled intersections that are much longer to cross than perpendicular intersections. Longer crosswalks increase the safety risk for pedestrians because they are in the road longer, and curb ramps need to be specially designed to face the line of travel for visually impaired individuals to accurately cross the street. Several of the pinch point intersections, shown on Map 8, may be inexpensively redesigned by repainting crosswalks and adding new curb ramps to increase pedestrian safety with crossing STH 107. Other recommendations suggest realigning whole intersections, which will take a long time to implement with reconstruction road projects.

Recommendation for STH 107 is:

- Paint a white line and bike graphics on the curb side of two, center, 12-foot travel lanes, per MUTCD Figure 9C-3, on page 3 of 4 in Attachment D. If at least a 13-foot parking lane cannot be maintained along with a 12-foot wide center travel lane, then just paint a white line identifying the edge of the 12-foot wide center travel lane. Parking or bike riding could occur in the curb lane.
- Make crosswalk improvements per Panels #3, and 5 through 10 in Attachment H.

EVALUATION RECOMMENDATIONS

Reviewing how programs are working and how people are interacting on a regular basis determine if changes are needed to get the desired effect.

Program Counts

Always count how many people are participating in a bicycle education class, or fun ride, or Walk & Bike To School day event.

Time frame: Short term.

Responsible party: Same entity that is organizing event.

If few people are coming to an event in proportion to all the potential residents in Merrill, then changes are needed to make the program useful.

Bike and Pedestrian Counts

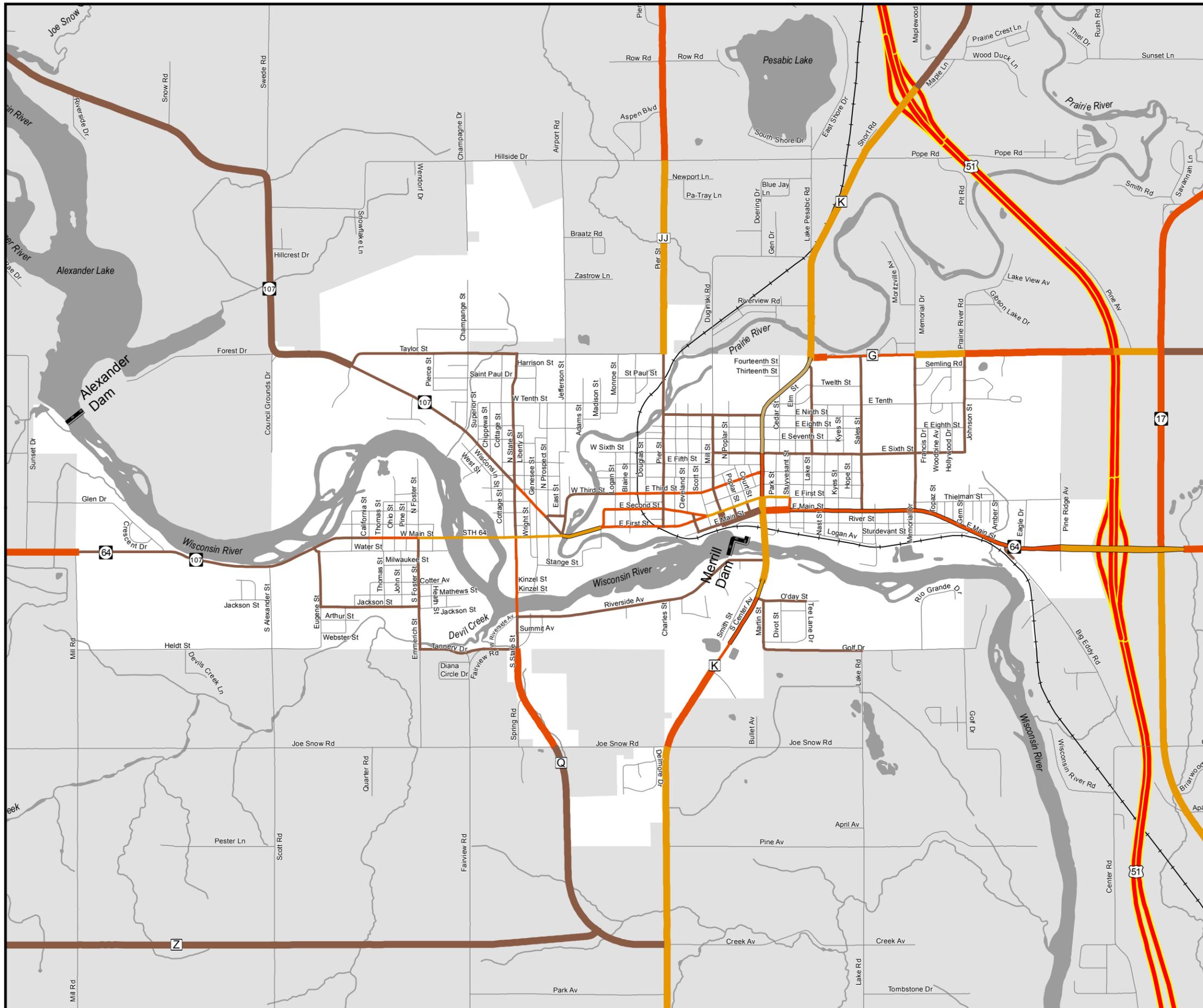
Annually count how many people are biking and walking.

Time frame: Short term.

Responsible party: Volunteers in coordination with Park & Recreation Commission.

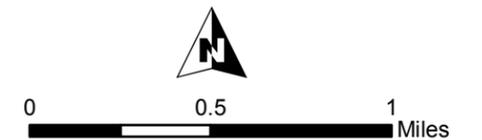
One of the greatest challenges facing the bicycle and pedestrian field is the lack of documentation on usage and demand. Without accurate and consistent demand and usage figures, it is difficult to measure the positive benefits of investments in these modes, especially when compared to the other transportation modes such as the private automobile. Annual bicycle and pedestrian counts provide a direct way to track usage trends over time. The National Bicycle & Pedestrian Documentation Project provides a recommended methodology and timing, survey and count forms free online. Local trainers Volunteers conduct the counts under a local government committee, so little financial burden exists. Don't forget to provide a thank you token of appreciation to the volunteers. `

Map 1 Bikeability of Roads City of Merrill



Single Lane Width	Wide Outer Lanes -OR- Paved Shoulders	4 Lanes	Bikeability
			Best
			Moderate
			Undesirable

- Bicycles Prohibited
- Local Roads
- Dams
- Railroad
- Water



Source: WisDOT, NCWRPC

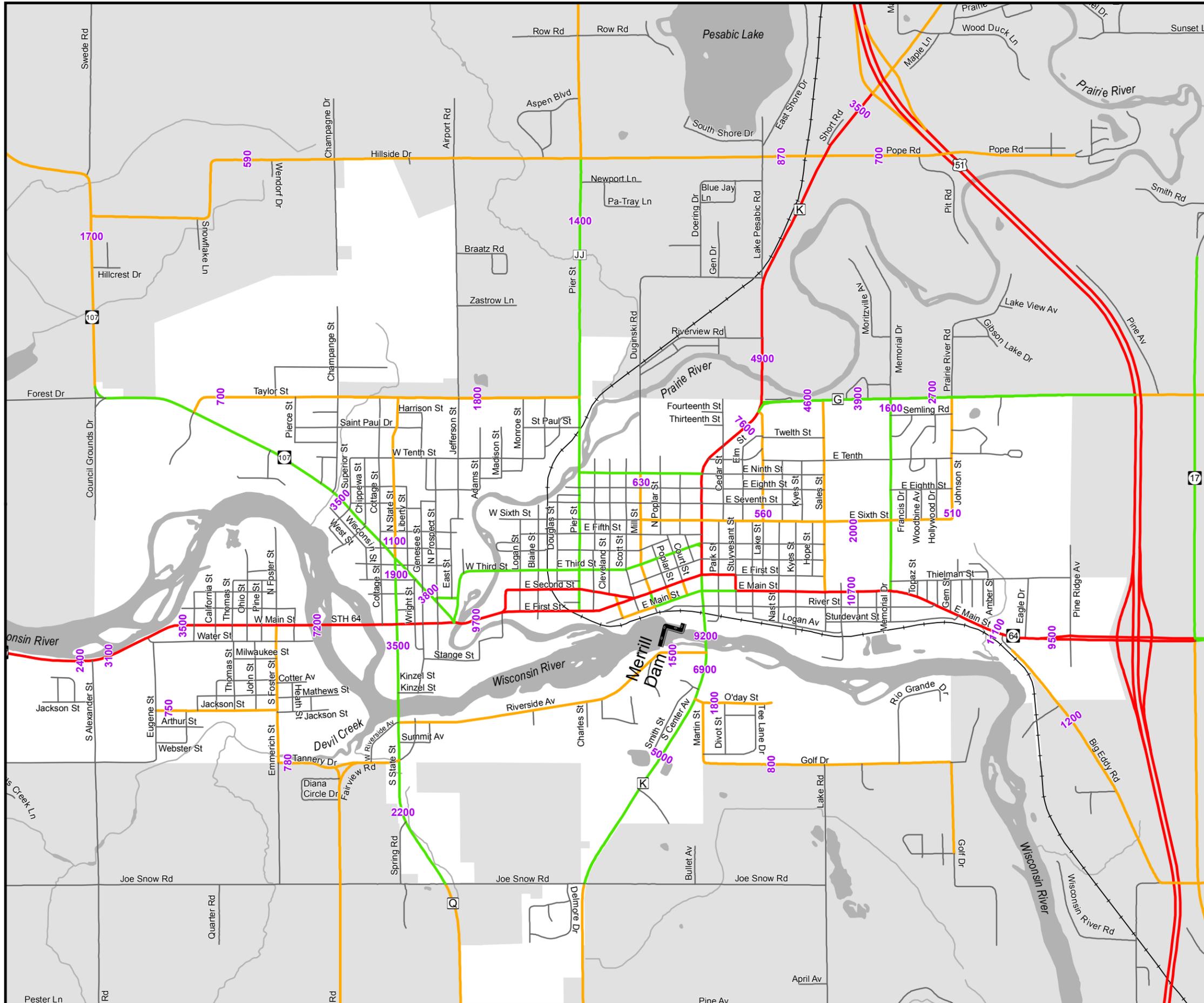
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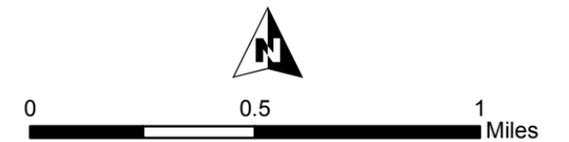
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Map 2
Functional Classification
 City of Merrill



Legend

- Principal Arterial
- Minor Arterial
- Collector
- Local Roads
- 500 2010 Average Daily Traffic Count, WisDOT



Source: WI DNR, NCWRPC, WisDOT

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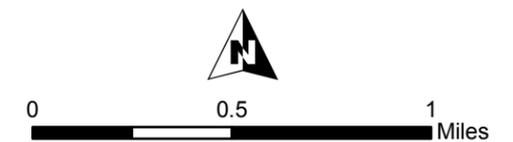
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Map 3 Truck Routes City of Merrill

Legend

-  Merrill Allows Truck Usage
-  WisDOT 65' Restricted Truck Route
-  Merrill Designated Truck Routes
-  WisDOT Designated Long Truck Route
-  Dam
-  US Highway
-  State Highways
-  County Highways
-  Local Roads
-  Private Roads
-  Railroad
-  Water
-  Roundabout



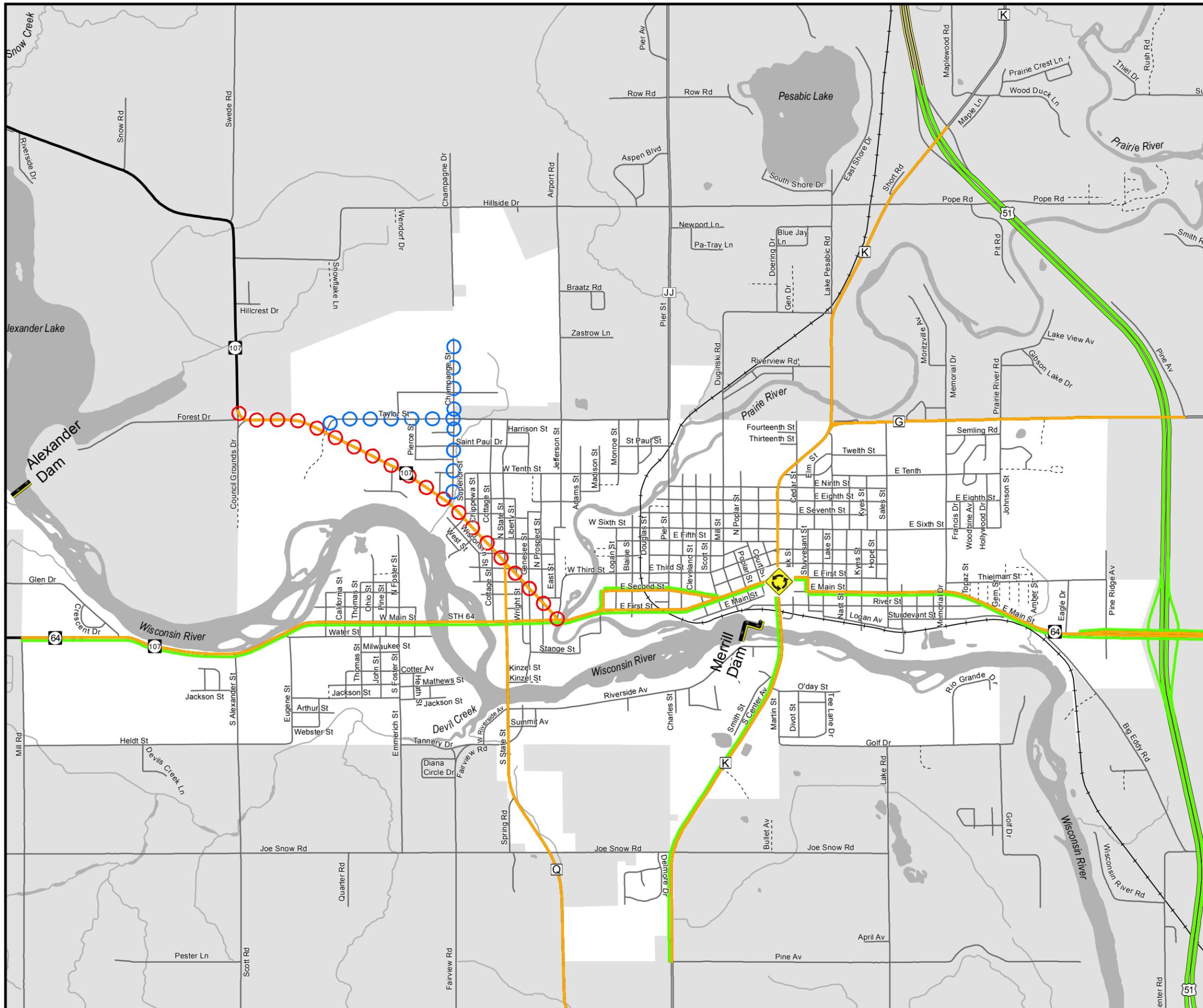
Source: WI DNR, NCWRPC, WisDOT, City of Merrill

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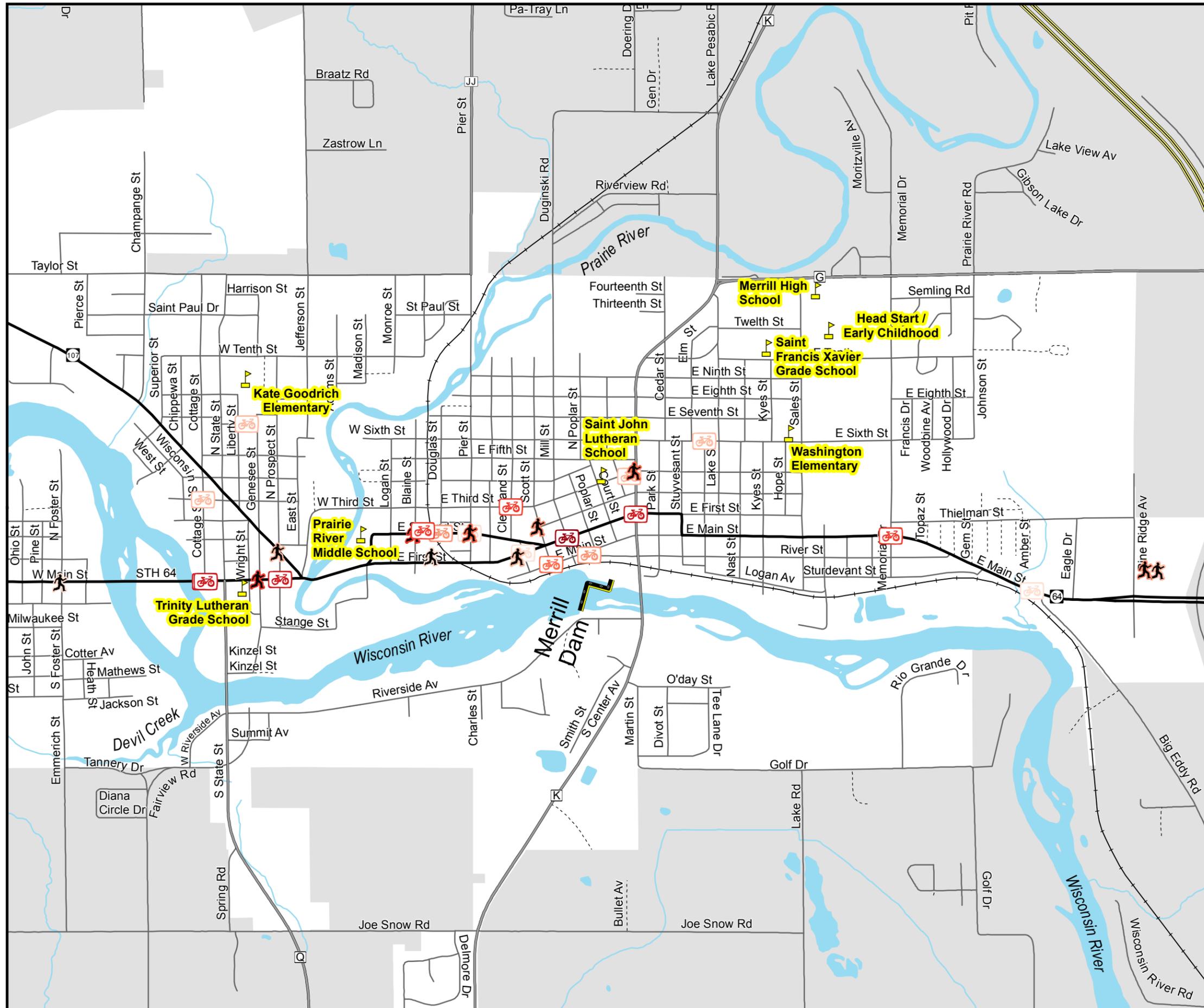


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Map 4 Crash Locations City of Merrill



Legend

- | | | |
|--|-----------------|------------------------|
| | US Highway | Crash Locations |
| | State Highways | Bicycle 2005 |
| | County Highways | Bicycle 2006 |
| | Local Roads | Bicycle 2007 |
| | Private Roads | Bicycle 2008 |
| | Railroad | Bicycle 2010 |
| | School | Bicycle 2011 |
| | Dams | Bicycle 2012 |
| | Water | Pedestrian 2005 |
| | | Pedestrian 2006 |
| | | Pedestrian 2007 |
| | | Pedestrian 2008 |
| | | Pedestrian 2010 |



Source: WI DNR, NCRWPC, Lincoln Co

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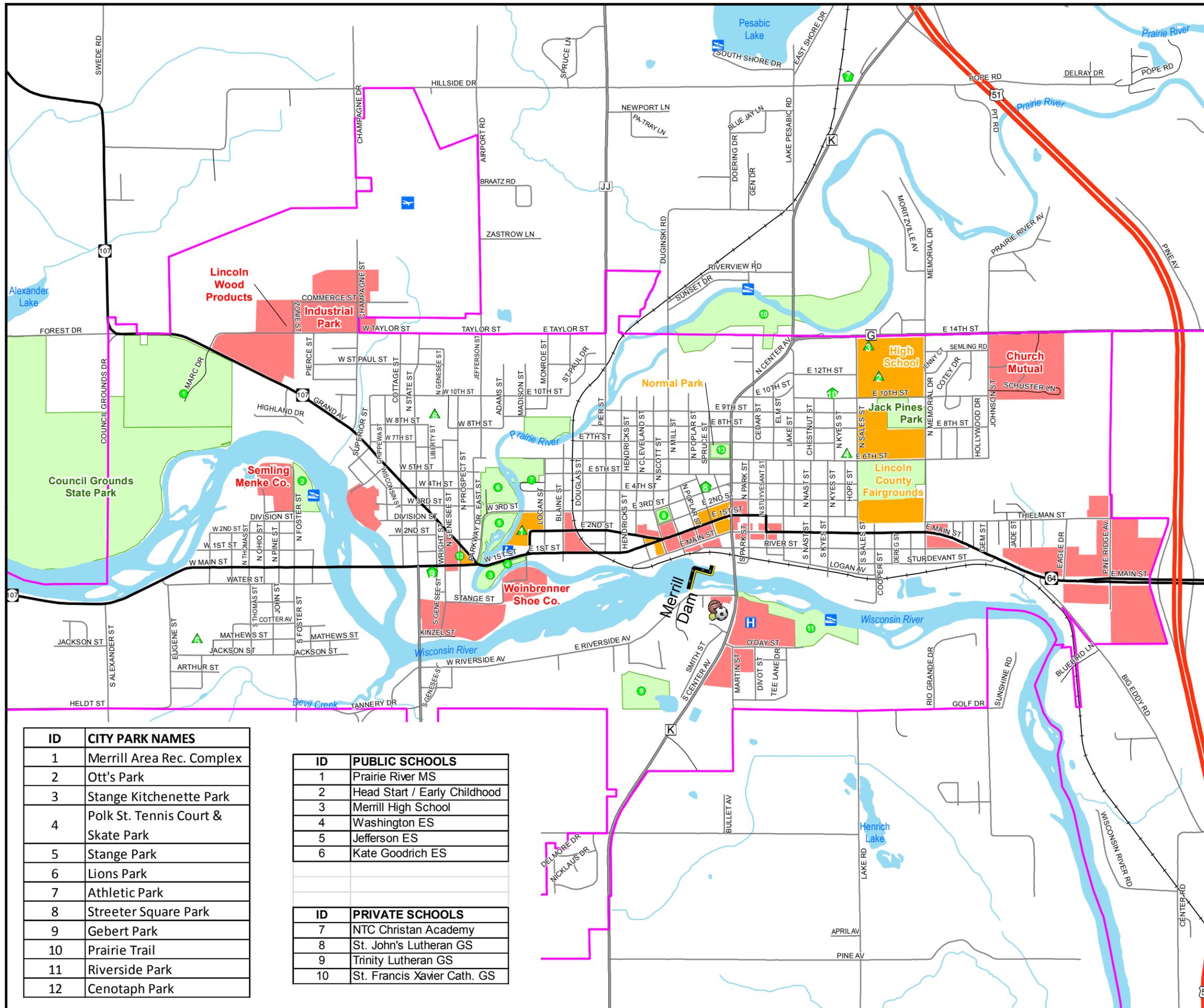


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Map 5 Major Trip Generators City of Merrill

-  Minor Civil Divisions
-  US & State Highways
-  County Highways
-  Local Roads
-  Private / Other
-  Railroad
-  Water
- Private Schools
- Public Schools
- Airport
- Boat Launch
- Library
- Hospital
- Athletic Club
- Parks
- Major Employment Areas
- Gov't & Multi-Family Housing



ID	CITY PARK NAMES
1	Merrill Area Rec. Complex
2	Ott's Park
3	Stange Kitchenette Park
4	Polk St. Tennis Court & Skate Park
5	Stange Park
6	Lions Park
7	Athletic Park
8	Streeter Square Park
9	Gebert Park
10	Prairie Trail
11	Riverside Park
12	Cenotaph Park

ID	PUBLIC SCHOOLS
1	Prairie River MS
2	Head Start / Early Childhood
3	Merrill High School
4	Washington ES
5	Jefferson ES
6	Kate Goodrich ES

ID	PRIVATE SCHOOLS
7	NTC Christan Academy
8	St. John's Lutheran GS
9	Trinity Lutheran GS
10	St. Francis Xavier Cath. GS



0 0.5 Miles

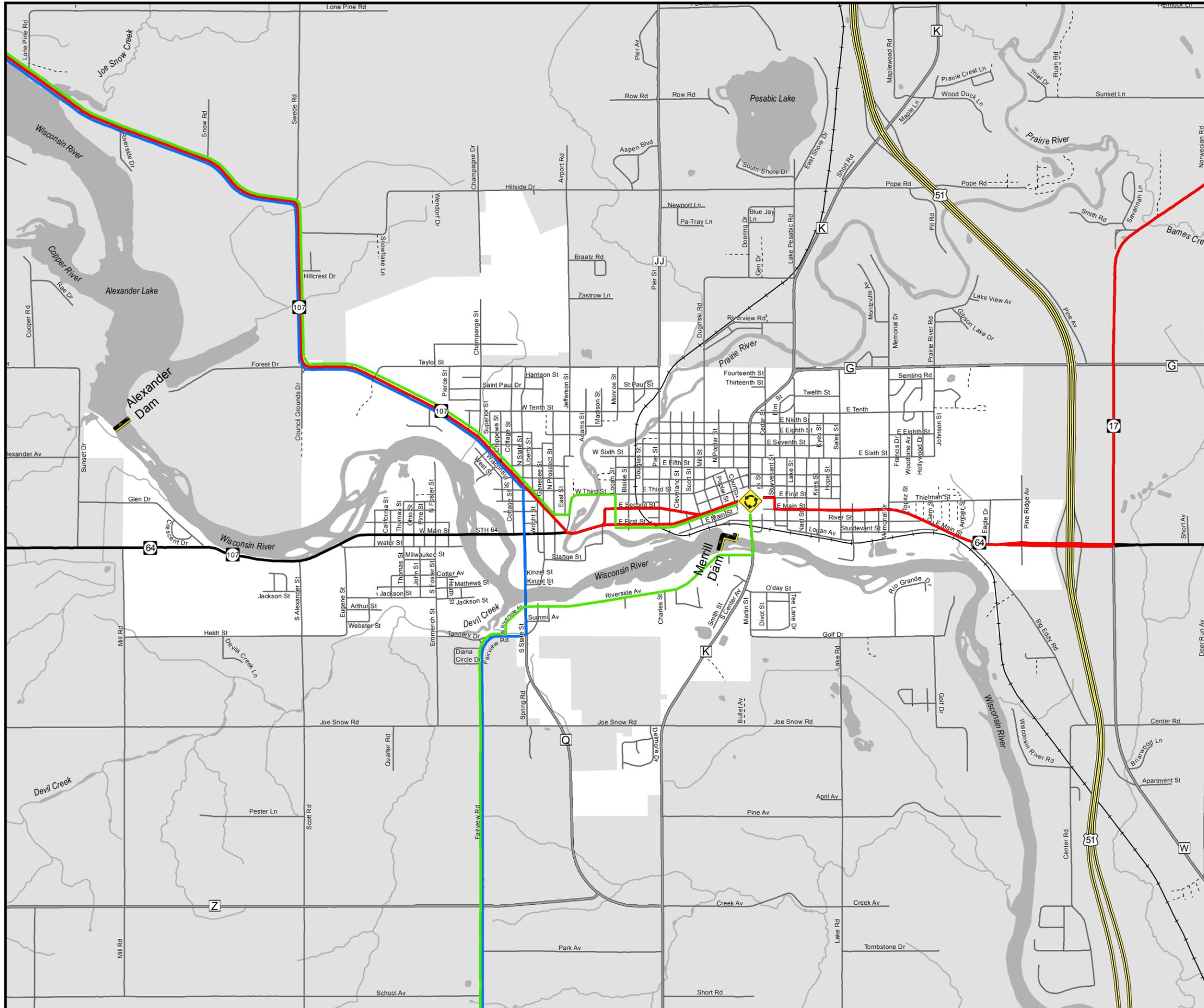
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Map 6
Proposed Regional Trails
 City of Merrill



Legend

-  DNR Segment 18 (Potential Trail)
-  Scenic Bike Auto Tour
-  GRABAAWR
-  Dams
-  US Highway
-  State Highways
-  County Highways
-  Local Roads
-  Private Roads
-  Railroad
-  Water
-  Roundabout



Source: WI DNR, NCWRPC

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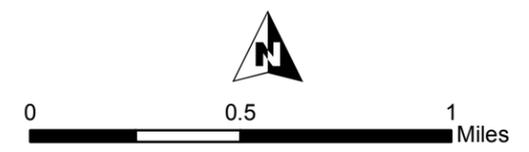
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Map 7 Walking and Biking Facilities City of Merrill

Legend

-  US Highway
-  State Highways
-  County Highways
-  Local Roads
-  Private Roads
-  Railroad
-  Dam
-  Bike Hill
-  Bridge
-  Stairs
-  River Bend Trail
(completed segments)
-  Wide Outside Lanes
For Bike Use
-  Bike Lanes
-  Sidewalks On Both Sides Of
Most Streets
-  Significant Sidewalk Gaps
-  Almost No Sidewalks
-  Water



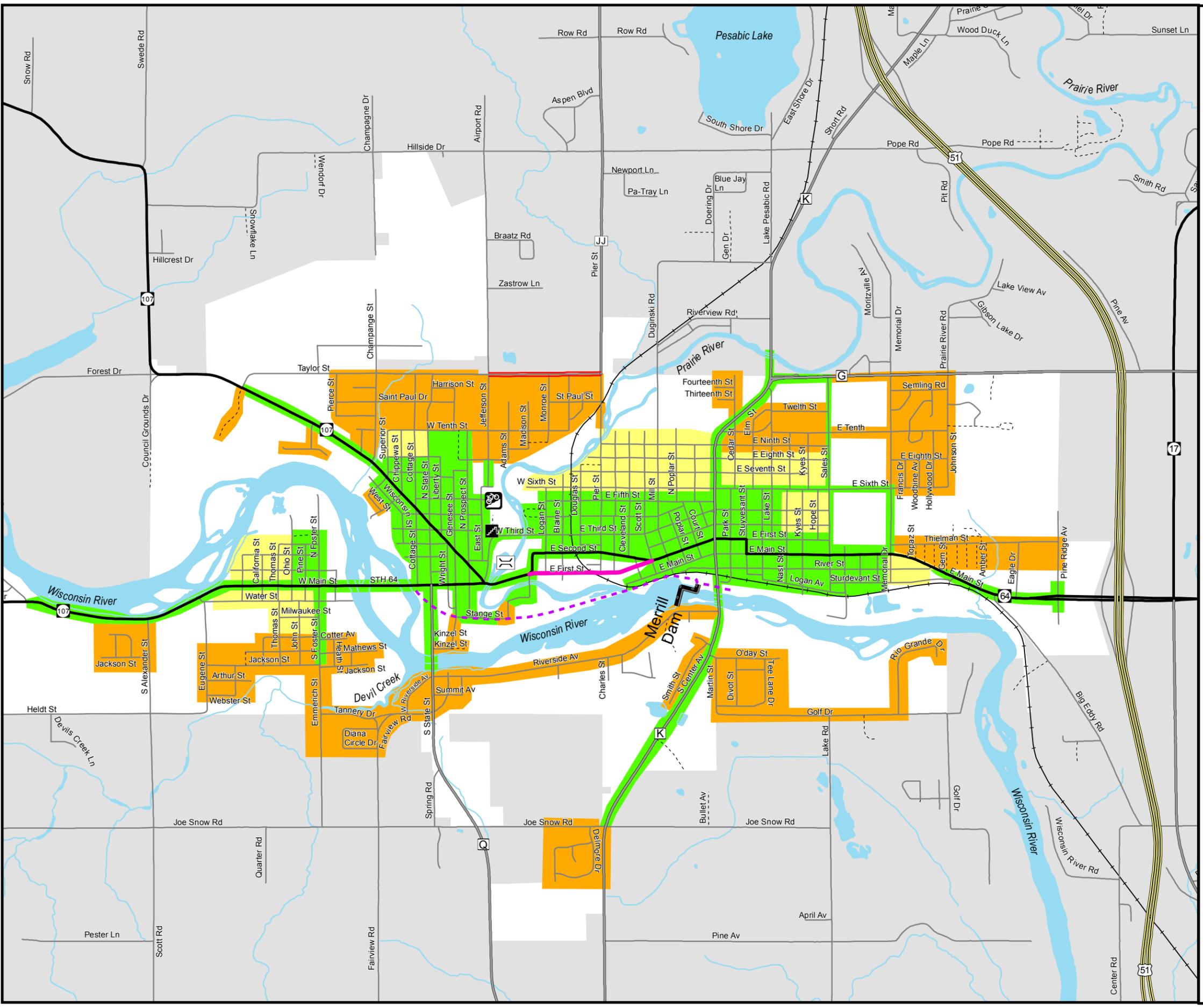
Source: WI DNR, NCRWPC, WisDOT

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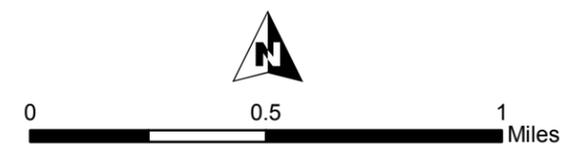
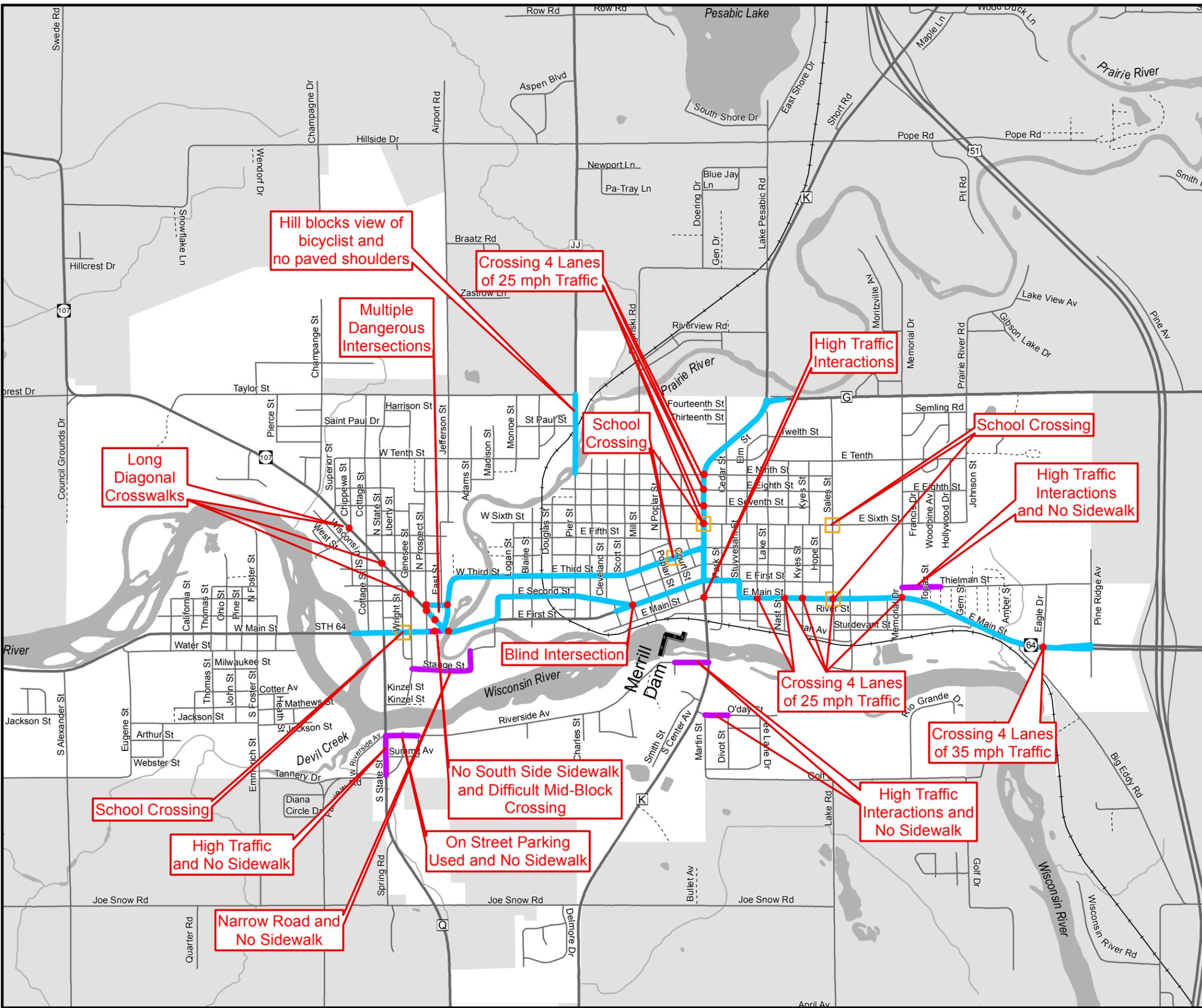
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Map 8
**Bike & Pedestrian
 Pinch Points**
 City of Merrill

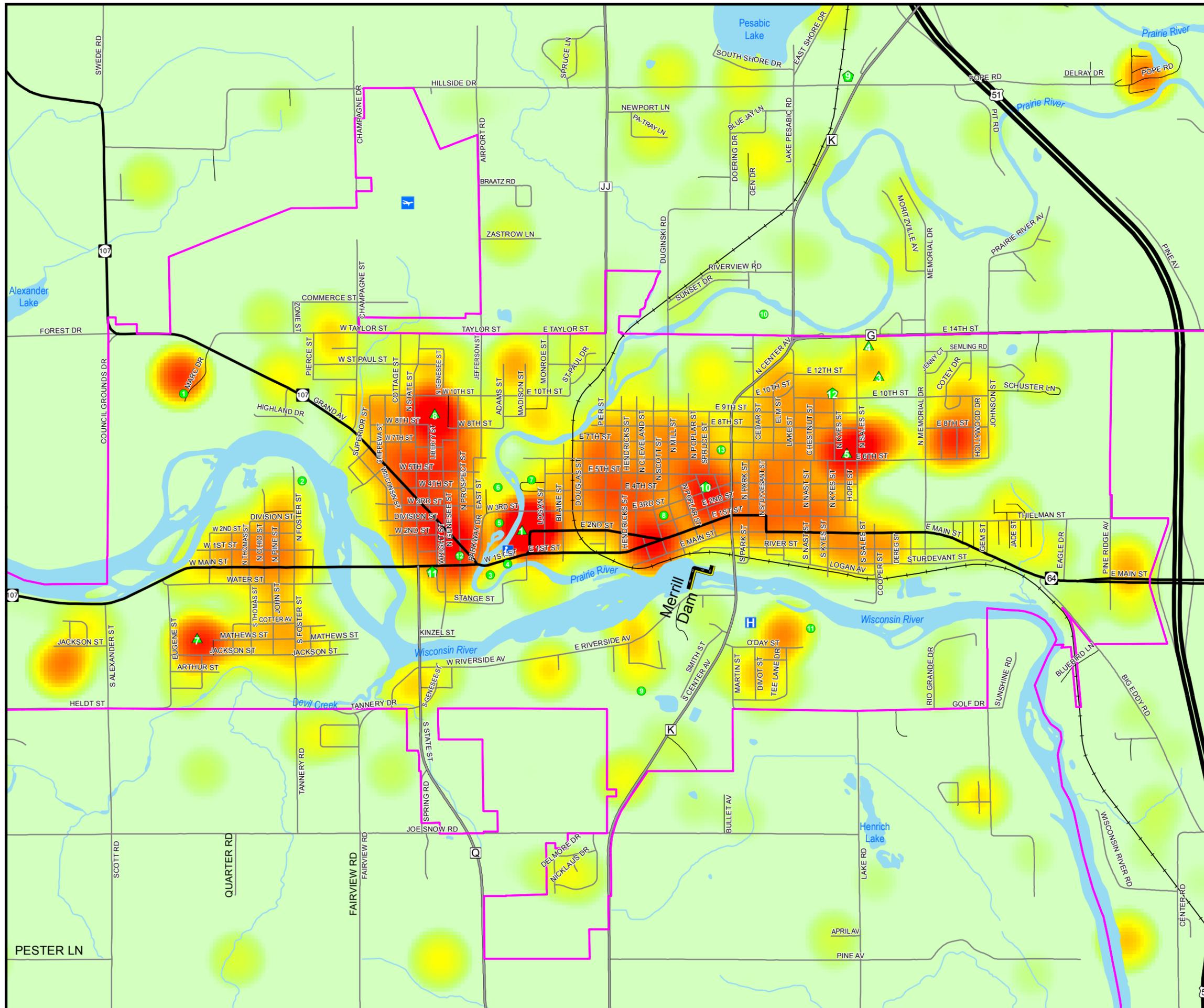
Legend

- Difficult Intersection to Cross
- Crossing Guard Intersection
- Difficult Road to Bike
- Difficult Road to Walk

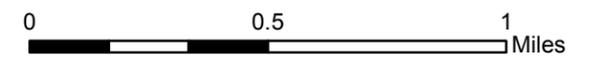
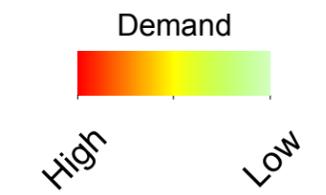


Source: WI DNR, NCWRPC
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Map 9
**Latent Walking
 & Biking Demand**
 City of Merrill

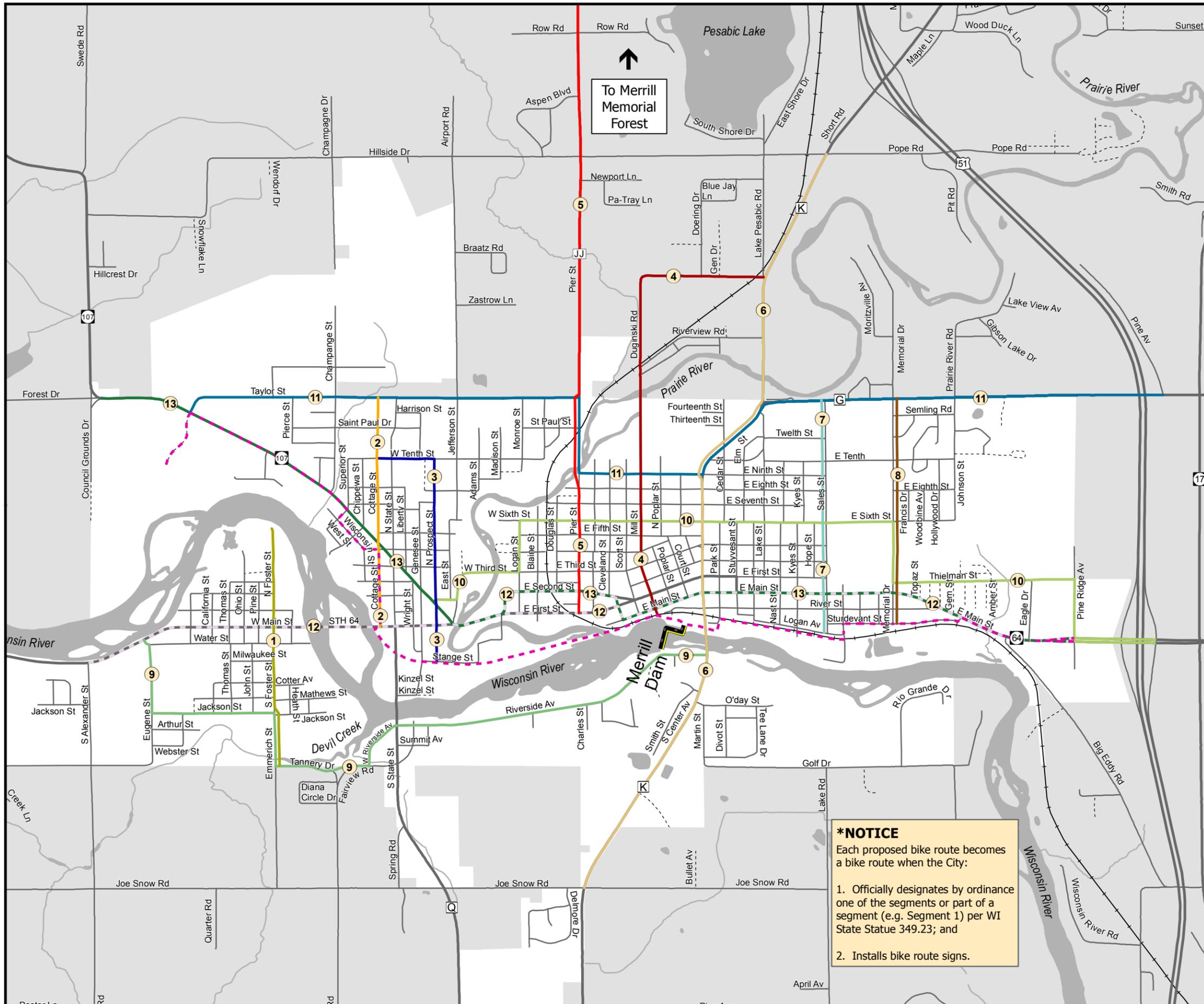


- Minor Civil Divisions
- US & State Highways
- County Highways
- Local Roads
- Private / Other
- Railroad
- Water
- Private Schools
- Public Schools
- Airport
- Library
- Hospital
- Parks



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Map 10 Proposed Bike Routes City of Merrill



Legend

- River Bend Trail
- Segment 1
- Segment 2
- Segment 3
- Segment 4
- Segment 5
- Segment 6
- Segment 7
- Segment 8
- Segment 9
- Segment 10
- Segment 11
- Segment 12
- Segment 13



Source: WI DNR, NCWRPC

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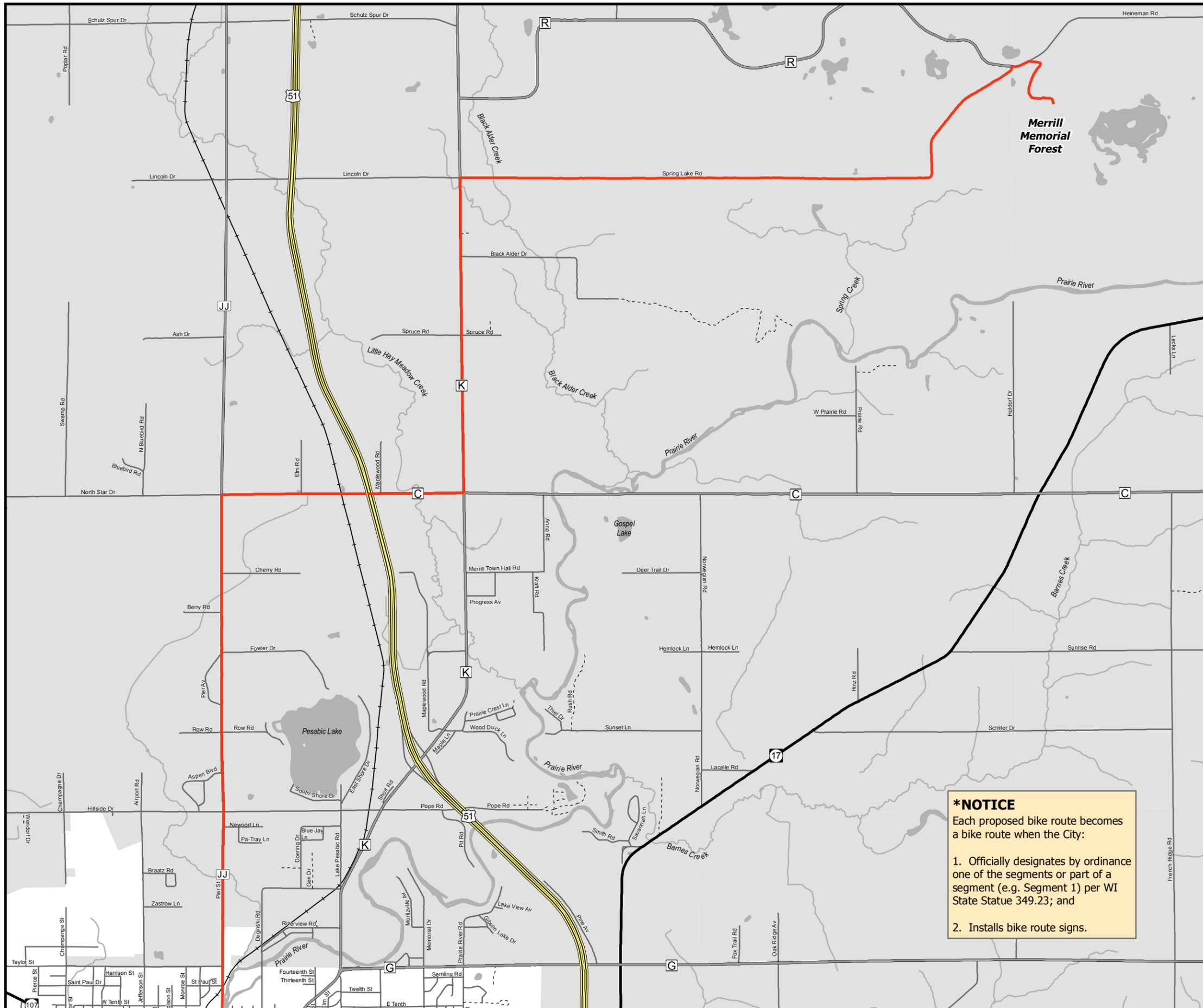
***NOTICE**
Each proposed bike route becomes a bike route when the City:

1. Officially designates by ordinance one of the segments or part of a segment (e.g. Segment 1) per WI State Statute 349.23; and
2. Installs bike route signs.

Map 11
**Proposed Merrill Memorial
 Forest Bike Route**
 City of Merrill

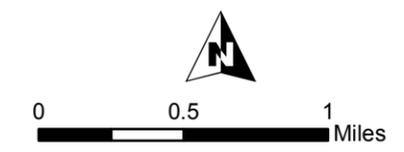
Legend

-  Bike Route
-  US Highway
-  State Highways
-  County Highways
-  Local Roads
-  Private Roads
-  Railroad
-  Water



***NOTICE**
 Each proposed bike route becomes a bike route when the City:

1. Officially designates by ordinance one of the segments or part of a segment (e.g. Segment 1) per WI State Statue 349.23; and
2. Installs bike route signs.



Source: WI DNR, NCWRPC
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ATTACHMENT A

Merrill Bicycle & Pedestrian Crashes, 2005-2012

City of Merrill Bicycle & Pedestrian Crashes, 2005-2012							
DOCTNMBR	Crash DATE		ON Street	AT Street	Crash Type	Bike or Ped Age	Bike or Ped M / F
7647383	6/25/2005	2005	E FIRST ST	N CLEVELAND ST	BIKE	38	F
7647382	7/1/2005		W MAIN ST	S FOSTER ST	PED	5	F
7647380	7/9/2005		E 2 ST	PIER ST	BIKE	15	F
7647145	7/12/2005		PARKING LOT	[300] E 1 ST	PED	36	F
7647144	7/13/2005		E MAIN ST	[3000] E MAIN ST	BIKE	43	M
7473242	2/25/2006	2006	PARKING LOT	[3500 BIK] E MAIN ST	PED	84	F
7648578	4/22/2006		PARKING LOT	[619] E FIRST ST	PED	21	M
7647238	4/25/2006		W 7 ST	[500 BIK]	BIKE	9	M
7648569	5/23/2006		COTTAGE ST	W 3 ST	BIKE	13	F
7648590	6/27/2006	*	E MAIN ST	E MAIN ST	BIKE	13	M
7652267	8/12/2006		PARKING LOT	[1203] E 3RD ST	BIKE	14	M
7648756	8/23/2006		ESEXTH ST	N VANRENSELAER ST	BIKE	9	M
7648628	10/3/2006		GRAND AVE	N PROSPECT ST	PED	83	F
7648552	2/28/2007	2007	PARKING LOT	[3404] E MAIN ST	PED	52	F
7660877	6/28/2007		N SCOTT ST	E 2 ST	PED	53	F
7660868	7/2/2007		E 2 ST	DOUGLAS ST	BIKE	15	M
7658406	9/24/2007		ALLEY [900 BIK]	E MAIN ST	BIKE	16	F
JB0DM9S	1/24/2008	2008	PIER ST	2ND ST E	PED	65	F
C4SK2NS	7/14/2008		3RD ST E	CENTER AVE	PED	76	F
JB0RQN9	8/4/2008		SCOTT ST	MAIN ST E	BIKE	14	F
JB0RQQC	4/28/2010	2010	BLAINE ST	2ND ST E	PED	13	M
JB0GV0N	5/25/2010		CLEVELAND ST	3RD ST E	BIKE	13	F
JB11W3B	8/14/2010		W MAIN ST	GENESSE ST	PED	15	M
JB0R0HG	8/24/2010		MAIN ST E	MEMORIAL DR N	BIKE	9	F
JB0RQQM	8/28/2010		PARKING LOT	[300] 2ND ST E	BIKE	**	M
JB0Q8C1	5/26/2011	2011	W MAIN ST	COTTAGE ST	BIKE	17	F
JB0GV1L	5/31/2011		COTTAGE ST	W MAIN ST	BIKE	13	M
JB0GV1S	8/3/2011		CENTER AVE	1ST ST E	BIKE	66	M
JB0RQRC	8/8/2011		PROSPECT ST	W MAIN ST	BIKE	13	F
JB13CJV	5/9/2012	2012	MILL ST	1ST ST E	BIKE	13	M

Source: January 2005-December 2012, MV4000 Crash Database, Wisconsin Traffic Operations and Safety Laboratory.

* Not mapped.

** Data not provided.

ATTACHMENT B

Bicycle Crash Analysis for Wisconsin

Bicycle Crash Analysis for Wisconsin

Successful efforts have been made over the past three decades in Wisconsin to reduce the number of crashes and fatalities related to bicycle-vehicle crashes. However, a more complete understanding of these crashes was necessary in order to continue to decrease the number of serious and fatal crashes. This comprehensive crash analysis takes the first and most important step of “typing” bike-motor vehicle crashes for 2003. This report goes on to analyze these crashes in more depth and identifies commonalities between these crashes and crash characteristics, specifically related to traffic conditions, roadway attributes, and the users involved in the crashes.

REVIEW OF MAJOR FINDINGS

Based on the preliminary findings of previous smaller studies, some of this study’s findings are not surprising. In another regard, the study produced significant new contributions to crash evaluation in the state. This study made an enormous contribution by determining the crash types for all bicyclist- motorist (bicycle – vehicle) crashes during an entire year. It also researched the characteristics of roadway width in more depth than in previous works. Additionally, the evaluation of sidepath crashes was not done on a statewide basis until this study was performed. Here are the major findings of the report:

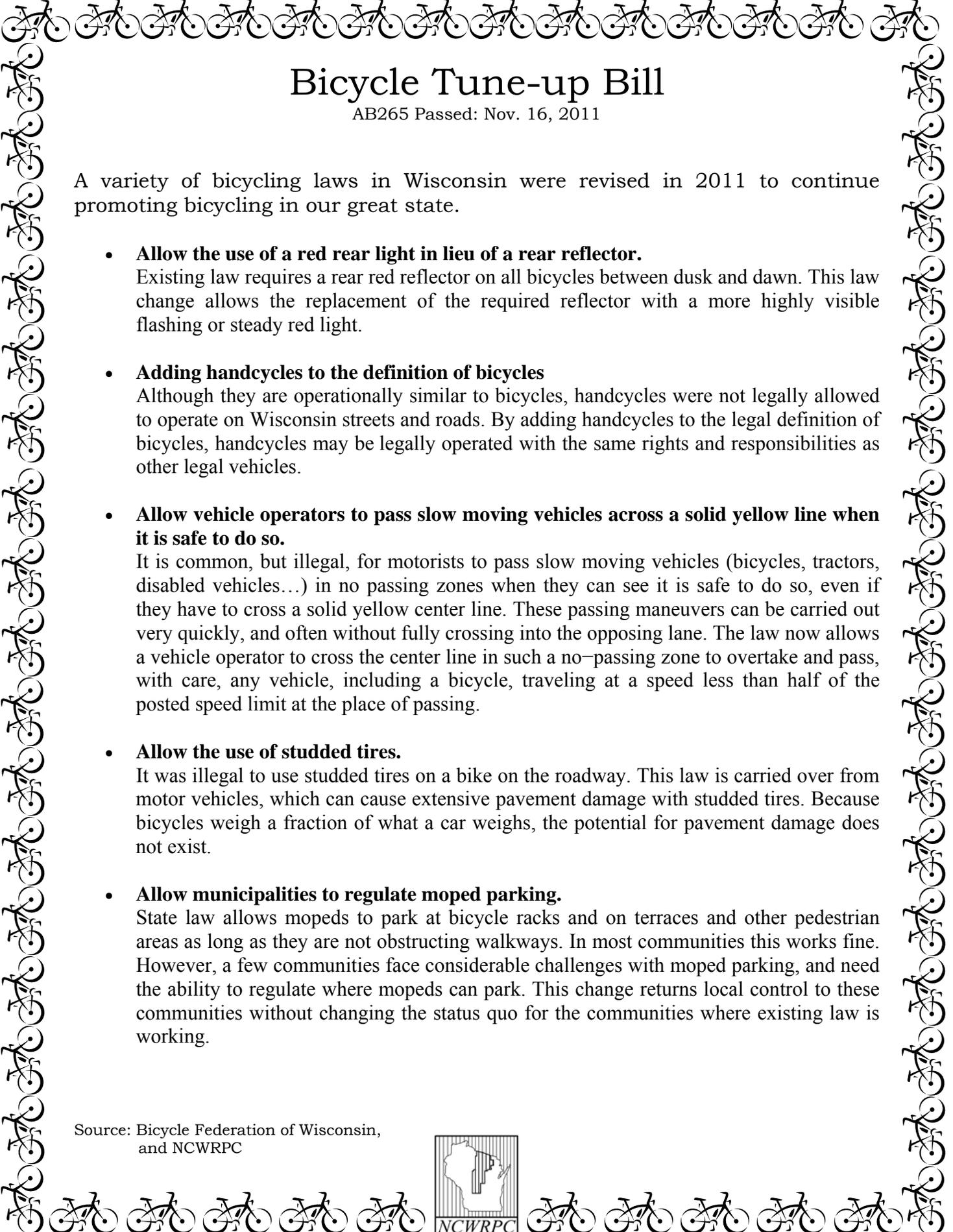
- Bicycle – vehicle crashes are declining in the State of Wisconsin. From 1999 – 2004, annual crashes have decreased by 14%. Ideally, this report will contribute to a continual reduction in crashes by increasing bicyclist awareness, providing countermeasures to avoid common crashes, and increasing education amongst bicyclists and motorists.
- Bicycle – vehicle crashes are almost twice as common during workweek days than on the weekend days. The majority of workweek crashes occur during the a.m. and p.m. peak travel hours. The lower number of crashes occurring on weekends may indicate that recreational bike trips occur more frequently on recreational trails or low volume roadways where exposure is less.
- Many bicycle – vehicle crashes had similar characteristics. A large concentration of crashes occurred within one of, or a combination of, the following environments: in an urban city, at an intersection, or on an urban city street or arterial roadway. Eighty-three percent of crashes occurred in a city (MV4000 Report), 93.6% of crashes occurred in an urban area (MV4000 Report), 65.7% of crashes occurred at an intersection (PBCAT), 71.7% of crashes occurred on a city street (MV4000 Report), and 56.1% of crashes occurred on an arterial street.
- Unfortunately, alcohol was a factor in some of the crashes. The MV4000 data does not declare whether the driver or bicyclist was under influence, only if alcohol was a factor in the crash. 4.2% of urban crashes reported alcohol as being involved and 4.6% of rural crashes reported alcohol as being involved. This is slightly lower than national percentages from the Crash Types of the Early 1990’s report and compares to a 7.0% alcohol involvement of all Wisconsin crashes.
- Bicycle – vehicle crashes occurred mainly during daylight hours, and when they did occur at night, most were in a location with lighting. Over 83% of crashes occurred during daylight hours, and of the 12.3% of crashes occurring at night, only one out of every ten occurred without some sort of lighting present.

Bicycle Crash Analysis for Wisconsin

- Male bicyclists were involved in almost 75% of all bicycle – vehicle crashes. Even crashes involving children reported over 70% of the bicyclists being male.
- Almost 80% of rural bicycle – vehicle crashes occurred on roadways with posted speed limits of 55 miles per hour. Crashes occurring at such high rates of speed will increase the likelihood of a bicyclist injury or death. This is evident in the higher percentage of rural crashes resulting in fatalities than in urban crashes.
- Four out of the top five crash types indicate that the motorist made the critical error. This may indicate that motorists are not fully aware of bicyclists on the roadway and that increased education is necessary.
- Urban areas and urban streets have much higher crash rates than rural areas based on all indices examined - miles of roadway, bicycle miles traveled, and vehicle miles traveled. Although crash rates were higher for urban areas, the rate of fatal crashes was double for rural crashes compared to urban crashes based on bicycle miles traveled.
- Milwaukee County has the highest average crash rate when bicycle miles traveled and vehicle miles traveled are averaged together. The rate is three times that of the lowest counties of Brown, Marathon, and Wood.
- The city of Madison has a low average crash rate based on bicycle miles traveled. A scattering of other cities – Appleton, Green Bay, and Wausau also have relatively low average crash rates based on bicycle miles traveled, but none of these communities come close to the total bicycle miles traveled as demonstrated by Madison.
- When bicycle-vehicle crash rate is compared to the overall crash rate for all vehicles, the rate was twice as high for bicycle-vehicle crashes compared to all vehicle crashes. The bicycle crash rate was based on bicycle miles traveled, while the comparison rate for total vehicle crashes was based on total vehicle miles traveled.
- For local rural roads, the greater the width, the lower the bicycle-vehicle crash rate. Twenty foot roadways had a crash rate that was double the crash rate of 22 foot roadways, but the 22 foot roadways had a rate that was over 40% higher than 24' roadways. Overtaking-type crashes were significantly lower for 24' roadways.
- Rural state highways had much lower bicycle-vehicle crash rates than local roads. Similar to local roads, 24-foot roadways had significantly lower crash rates than 22-foot roadways. Interestingly, having three foot paved shoulders did not improve the crash rate among these widths of roadways. However, the crash rate did significantly lessen when five [foot] paved shoulders were added (compared to three foot paved shoulders).
- Sidepath crashes are common crashes in urban areas. Twenty-nine percent of all urban crashes were recorded as such. Motorist drive-out from both sign and signal-controlled intersections are by far the two most common crash types. How significant a problem this is, is difficult to ascertain without knowing the frequency of bicycle use on sidepaths/walks and their connecting crosswalks.

ATTACHMENT C

Bicycle Tune-Up Bill Summary Sheet



Bicycle Tune-up Bill

AB265 Passed: Nov. 16, 2011

A variety of bicycling laws in Wisconsin were revised in 2011 to continue promoting bicycling in our great state.

- **Allow the use of a red rear light in lieu of a rear reflector.**
Existing law requires a rear red reflector on all bicycles between dusk and dawn. This law change allows the replacement of the required reflector with a more highly visible flashing or steady red light.
- **Adding handcycles to the definition of bicycles**
Although they are operationally similar to bicycles, handcycles were not legally allowed to operate on Wisconsin streets and roads. By adding handcycles to the legal definition of bicycles, handcycles may be legally operated with the same rights and responsibilities as other legal vehicles.
- **Allow vehicle operators to pass slow moving vehicles across a solid yellow line when it is safe to do so.**
It is common, but illegal, for motorists to pass slow moving vehicles (bicycles, tractors, disabled vehicles...) in no passing zones when they can see it is safe to do so, even if they have to cross a solid yellow center line. These passing maneuvers can be carried out very quickly, and often without fully crossing into the opposing lane. The law now allows a vehicle operator to cross the center line in such a no-passing zone to overtake and pass, with care, any vehicle, including a bicycle, traveling at a speed less than half of the posted speed limit at the place of passing.
- **Allow the use of studded tires.**
It was illegal to use studded tires on a bike on the roadway. This law is carried over from motor vehicles, which can cause extensive pavement damage with studded tires. Because bicycles weigh a fraction of what a car weighs, the potential for pavement damage does not exist.
- **Allow municipalities to regulate moped parking.**
State law allows mopeds to park at bicycle racks and on terraces and other pedestrian areas as long as they are not obstructing walkways. In most communities this works fine. However, a few communities face considerable challenges with moped parking, and need the ability to regulate where mopeds can park. This change returns local control to these communities without changing the status quo for the communities where existing law is working.

Source: Bicycle Federation of Wisconsin,
and NCWRPC



ATTACHMENT D

Bike Route Signs & Road Markings for Merrill

Bike Route Signs & Road Markings for Merrill

The Manual for Uniform Traffic Control Devices (MUTCD) is the required manual to use when determining what sign is needed along a road or on private property that is open to the public. Other guides also exist, some of which use the MUTCD. There is leeway built into MUTCD, because all notations in the manual are not law; standards are law, while guidance and option are built in flexibility. This recommendation uses that flexibility to suggest what may fit best in Merrill.

Section 2A.04 Excessive Use of Signs (From MUTCD 2009)

Guidance:

01 Regulatory and warning signs should be used conservatively because these signs, if used to excess, tend to lose their effectiveness. If used, route signs and directional guide signs should be used frequently because their use promotes efficient operations by keeping road users informed of their location.

NCWRPC Note: Since the green bike route signs (D11-1, and m series) below are guide signs, then frequent use is justified per the above guidance (2A.04). Frequent use is defined below in the NACTO text.

*“...every 2 to 3 blocks along bicycle facilities, unless another type of sign is used (e.g., within 150 ft of a turn or decision sign). Should be placed soon after turns to confirm destination(s). **Pavement markings can also act as confirmation that a bicyclist is on a preferred route.**”*

(From NACTO Urban Bikeway Design Guide)

MUTCD Figure 9B-4. Guide Signs and Plaques for Bicycle Facilities

For use in Merrill:



See next page for more signs.



Bike Route Signs & Road Markings for Merrill



R4-11



W11-1*



W16-1P*

In situations where there is a need to warn motorists to watch for bicyclists traveling along the highway, the SHARE THE ROAD (W16-1P) plaque (see Figure 9B-3) may be used in conjunction with the W11-1 sign.

On the separate "Section _" diagram pages, this symbol shows where a sign post and sign will face: "📍"

Example:



Place this sign assembly (below) on:

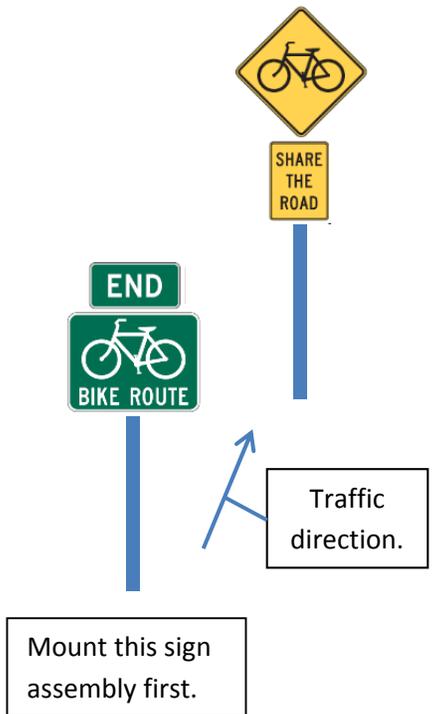
- Center Ave (2 assembly, one for each side of the road as traffic leaves eastbound Main St).



Place this sign assembly (below) at the end of the bike route:

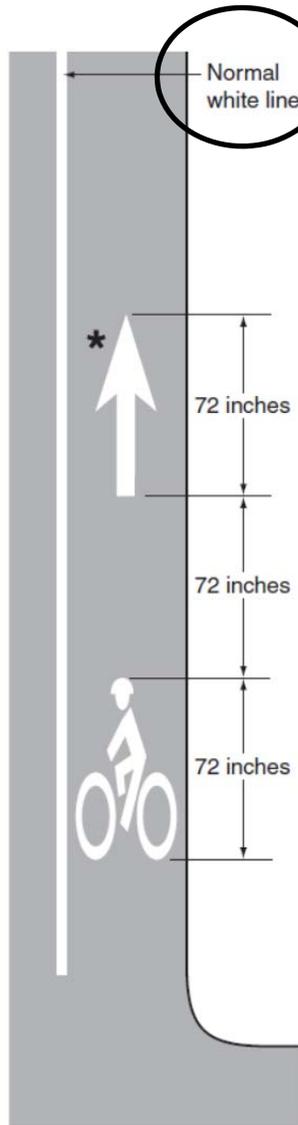
This shows that bikes are still allowed on the road, even though the route ended.

- Main St, eastbound toward Center Ave (1 assembly)



Bike Route Signs & Road Markings for Merrill

Bike Lane



B - Helmeted Bicyclist Symbol

MUTCD Figure 9C-3

Urban Shoulder

The *normal white line* of a bike lane painted in the curb lane, at least 3-feet plus gutter area away from the curb, is considered an *urban shoulder*.

If there is less than 5-feet available in a curb area for an official bike lane, then an *urban shoulder* could be painted to provide a small safe space for bicyclists.

Where on-street parking is necessary to keep, but where that parking may not be used consistently, an *urban shoulder* is suggested to be painted to encompass up to 7 feet of the whole parking lane. This area may be used to park cars and ride a bike in when cars are not there.

Use this Helmeted Bicyclist Symbol when painting bike lanes in Merrill.



Bike Route Signs & Road Markings for Merrill

“Sharrow”

Shared Lane Marking

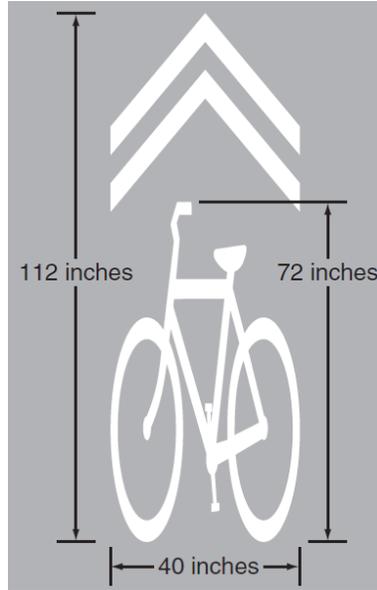


Figure 9C-9. Shared Lane Marking

This symbol is commonly called a “sharrow,” but is officially called a Shared Lane Marking – bicycle with a double chevron symbol.

The chevrons may be painted on a 45-degree angle to point toward a bike route turn, as a reinforcement to bicyclists using a specific route.

Guide Signs and Plaques for Bicycle Facilities

There are many guide signs and plaques that may be helpful with designating bike routes and bicycle wayfinding. See the Recommendation Chapter for bike route sign and wayfinding sign recommendation.



M1-8



M1-8a



D1-3c

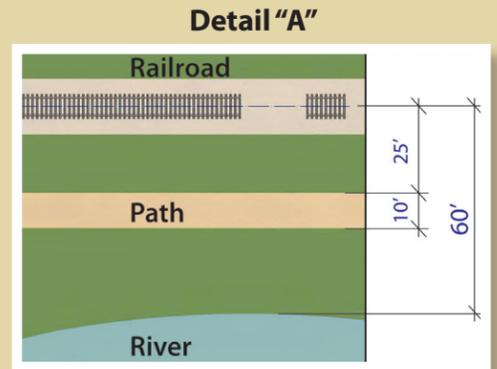
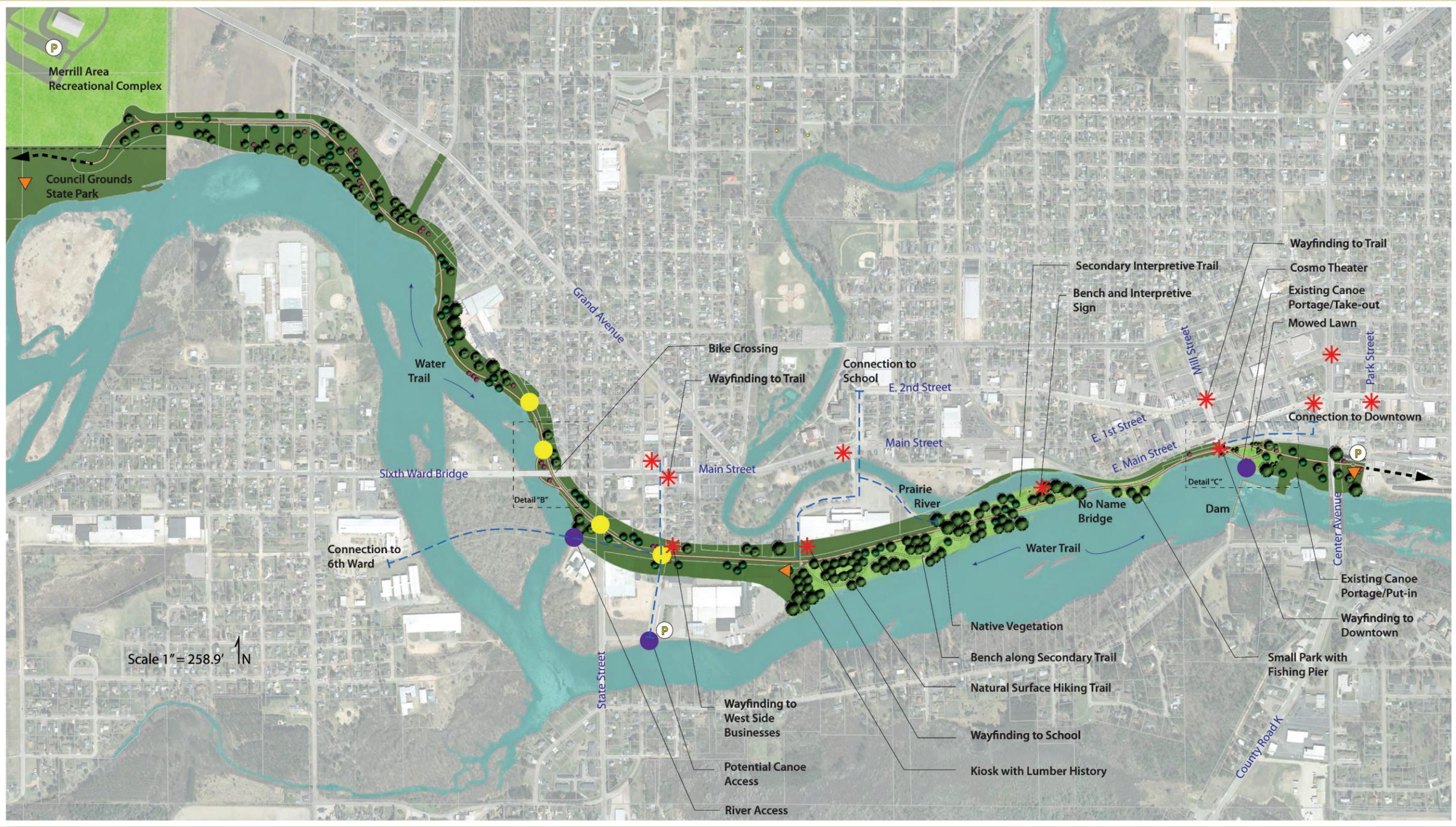
Sample bike route signs

Sample bike wayfinding



ATTACHMENT E

River Bend Trail Map



Legend

- Wayfinding Sign
- Parking
- Water Access
- Neighborhood Access
- Kiosk
- Connections
- Railroad
- Trail Corridor
- Park Space

Note: Green corridor is for graphic reference only. It does not imply property acquisition.



This project received a technical assistance grant from the Rivers, Trails, and Conservation (RTCA) Assistance Program of the National Park Service.

Detail "B"



Detail "C"



River Bend Trail of Merrill



River District Development Foundation of Merrill, Inc.

ATTACHMENT F

Bicycle Parking Guidelines

Bicycle Parking Guidelines

A summary of recommendations from the Association of Pedestrian and Bicycle Professionals

Bicycle Parking Design

- Required spaces shall be at least 2 feet by 6 feet.
- An access aisle of at least 5 feet shall be provided in each facility.
- Racks shall be situated to allow a minimum of 2 feet between adjacent bike parking stalls.
- Spaces shall have a vertical clearance of at least 80 inches.

Bicycle Rack Design

Structures that require a user-supplied locking device:

- must accommodate U-shaped locking devices,
- support the bike frame at two points,
- be securely anchored to the ground or the building structure, and
- be designed and maintained to be mud and dust free.

Bicycle Rack Location

- Racks should be located in a clearly designated safe and convenient location.
- Racks should be designed and located to be harmonious with the surrounding environment.
- Racks should be at least as convenient as the majority of auto parking spaces provided.

To learn more about bicycle parking guidelines, visit the Association of Pedestrian and Bicycle Professionals at: www.apbp.org.

These bicycle racks do NOT meet the design guidelines:

Grid or Fence Style Racks



Wave or Ribbon Style Racks

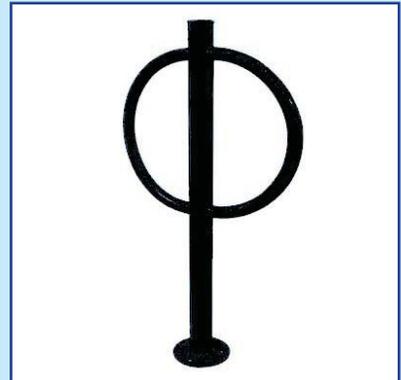


These bicycle racks DO meet the design guidelines:

Inverted-U Style Racks



Post Hitch Style Racks



Freestanding Style Racks



The above images are examples only. NCWRPC does not endorse any particular bicycle rack manufacturers.

If you have questions about whether a particular bicycle parking rack you are considering using meets these requirements, please contact NCWRPC planner **Fred Heider**, AICP at fheider@ncwrpc.org.

ATTACHMENT G

School Success Story: Omro, WI

Success Story:

Omro Middle School's Bike to School Day... and Beyond

Safe Routes Matters:
March/April 2012

Omro Middle School, in northeastern Wisconsin, has a history with Bike to School Day – it held its first Bike to School Day event in May 2010. But it didn't stop there. Program coordinator Joe Horvath supplied students with year-round bicycling activities and infrastructure to encourage students to choose an active commuting lifestyle and active hobbies.

Bike to School Day

The Omro School District held their first Bike to School Day event in May 2010, in conjunction with bicycling activities during the school day. More than 20 percent of students biked to school. A bicycle train program kicked off for the event and continued into the 2010-2011 school year.

Bike Fleet

The school developed a cycling program using a fleet of more than 35 bicycles that is available to students during physical education classes, lunch and special events and trips. The bicycle fleet is maintained by the school's "Young Mechanics," who are trained high school and middle school students working in a fully tooled bike shop. In an age when more and more U.S. cities are establishing bike sharing programs, Omro Middle School organizes and runs a bike share program itself, rather than through the support of a civic or adult organization.

Omro Middle School Young Mechanics Program

Omro Middle School's physical education teacher has trained a crew of young bicycle mechanics. The young bicycle mechanics work out of the school's "Bicycle Shoppe." Their job is to maintain the school's bicycle fleet, which is used during physical education classes, and assist other students with bicycle maintenance issues. The young mechanics earn "bike bucks" for their work in the Bicycle Shoppe, which they can redeem for bicycle parts, tires, and sale bikes.

—Adapted from Safe Routes Matters,
March/April 2012

Bicycle Education and Cyclocross

Omro Middle School has begun developing a bicycle education program and a 0.75-mile cyclocross course on the school campus, connecting the existing on-campus limestone surface trail and the school forest. The course is already used by middle school bicycle education curriculum classes, and the goal is to develop a cyclocross program in the 2011-2012 school year. Instruction in cyclocross racing has been offered the past several years during their middle school Career & Hobby Day held each May.

Annual Bicycle Field Trip

Every year, Omro's eighth graders take two weeks of the bicycle curriculum in their physical education class. Near the end of May, approximately 100 students take part in an eighth-grade bicycle field trip with 30 teacher/parent chaperones. Students are divided into teams for a day-long scavenger hunt spanning 30 miles of bicycling.

Students begin by completing a bicycle safety quiz. Then they ride to their first stop, where a law enforcement officer judges how safely they bicycled. Throughout the day, students bike 2-3 miles at a time to these stations, where adult "Station Masters" assign tasks and ask questions involving bicycle rules and safety, math, language arts, social studies, science and art. Each station also has a healthy snack and water. At the end of the day, Omro Middle School awards donated recreational door prizes at a picnic. The school always raffles off a fully equipped bike, as well as smaller prizes for every student.

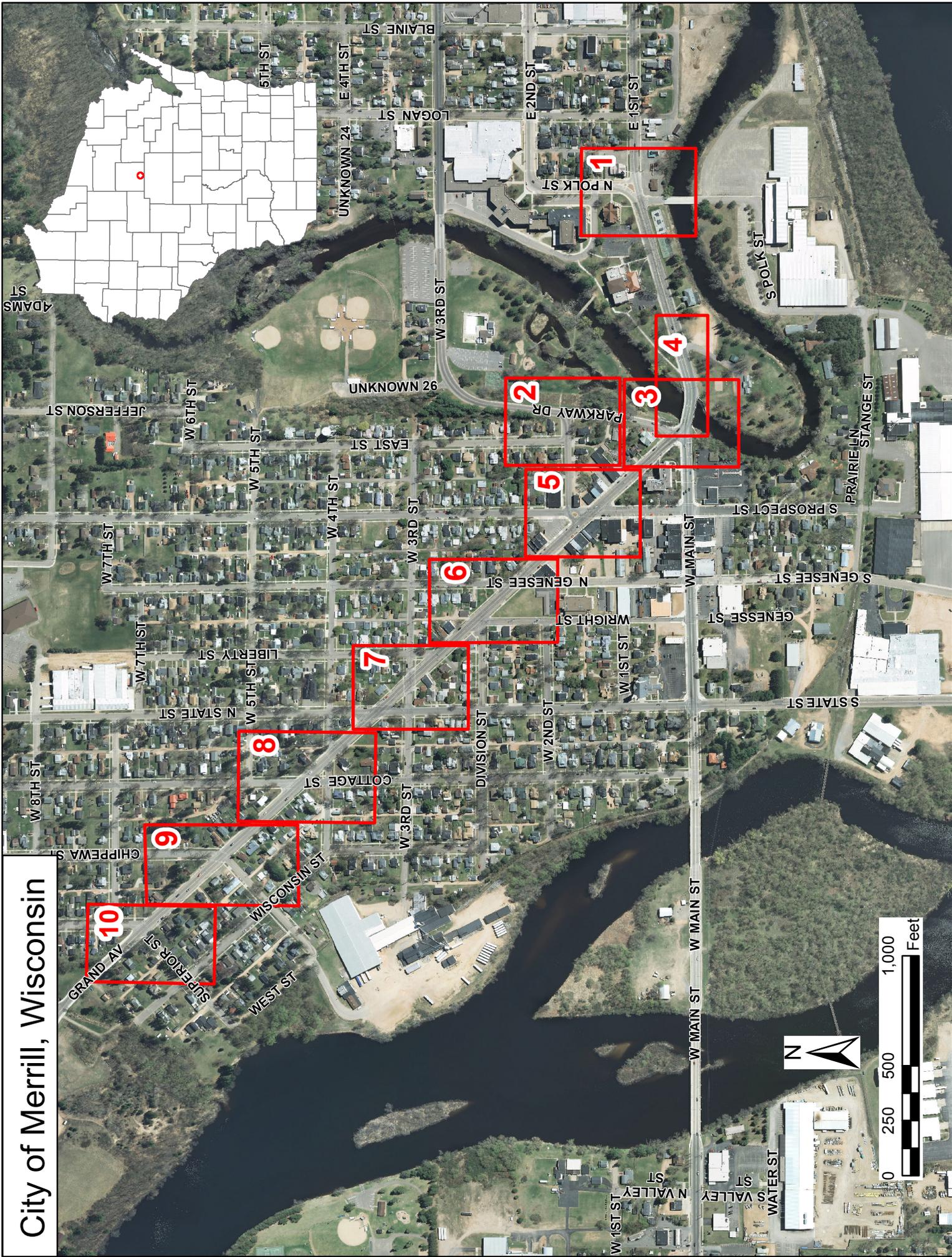
These components lead to a culture committed to year-round bicycling at the school – in fact, three students biked to school every day last year, through all seasons of Wisconsin weather.

“Omro's bicycling programs have established a year-round, enthusiastic bicycling culture that helps students develop a lifelong love for and commitment to bicycling and to physical activity in general,” said Lauren Marchetti, director of the National Center for Safe Routes to School. “This culture is made possible by the students and by the program administrators that support them. Joe's heart and commitment to the students typifies what a Safe Routes to School local champion is, and what he or she can accomplish.”

ATTACHMENT H

Recommended STH 64 & 107 Area Improvement Panels

City of Merrill, Wisconsin

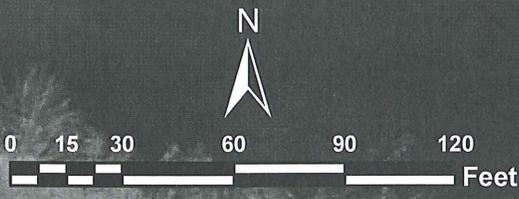


1

Entry to bike lane painted as "shortened dash."



TWLTL = Two Way Left Turn Lane



EAST ST

EAST ST

MERRILL ST

PARKWAY DR

BIKE LANE

Add new "ladder" crosswalk at this location.

Add a new street light at "triangle location, facing perpendicular to Merrill St.

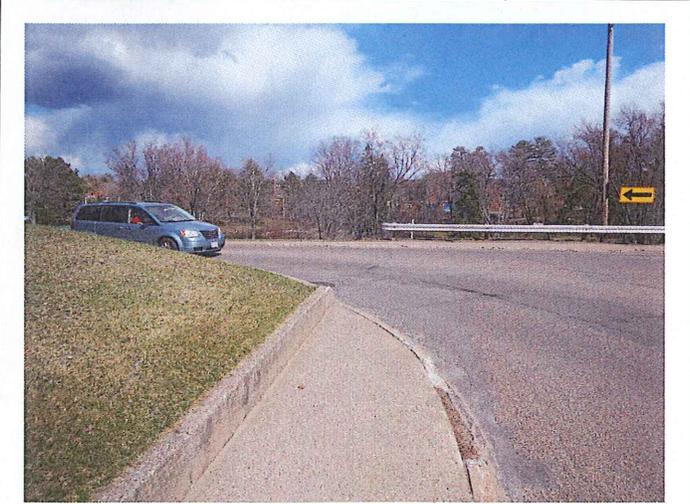
Paint sharrows downhill and a bike lane uphill.

Add an ADA approved sidewalk ramp at each "dot."

Remove sidewalk and mini retaining wall, and add grass at all the "x" locations, so kids don't use this as a sidewalk anymore.

Add sharrows in both directions on Merrill St.

Add switchback path that is ADA approved.



Blind intersection



Parkway Dr. at Grand Ave. is one way north. Block southbound Parkway Dr. with painted lines.

Extend curbs and reconstruct ADA sidewalk ramps (every dot) to point toward line of travel.

Reconstruct existing path as 8-foot wide asphalt path.
Illuminate path for night use.

W MAIN ST

W 1ST ST

Potential pedestrian bridge

New Path

Add sidewalk where "x" are shown, and new crosswalk across Main Street.
May need to move "stop line" west to provide more room for new crosswalk.

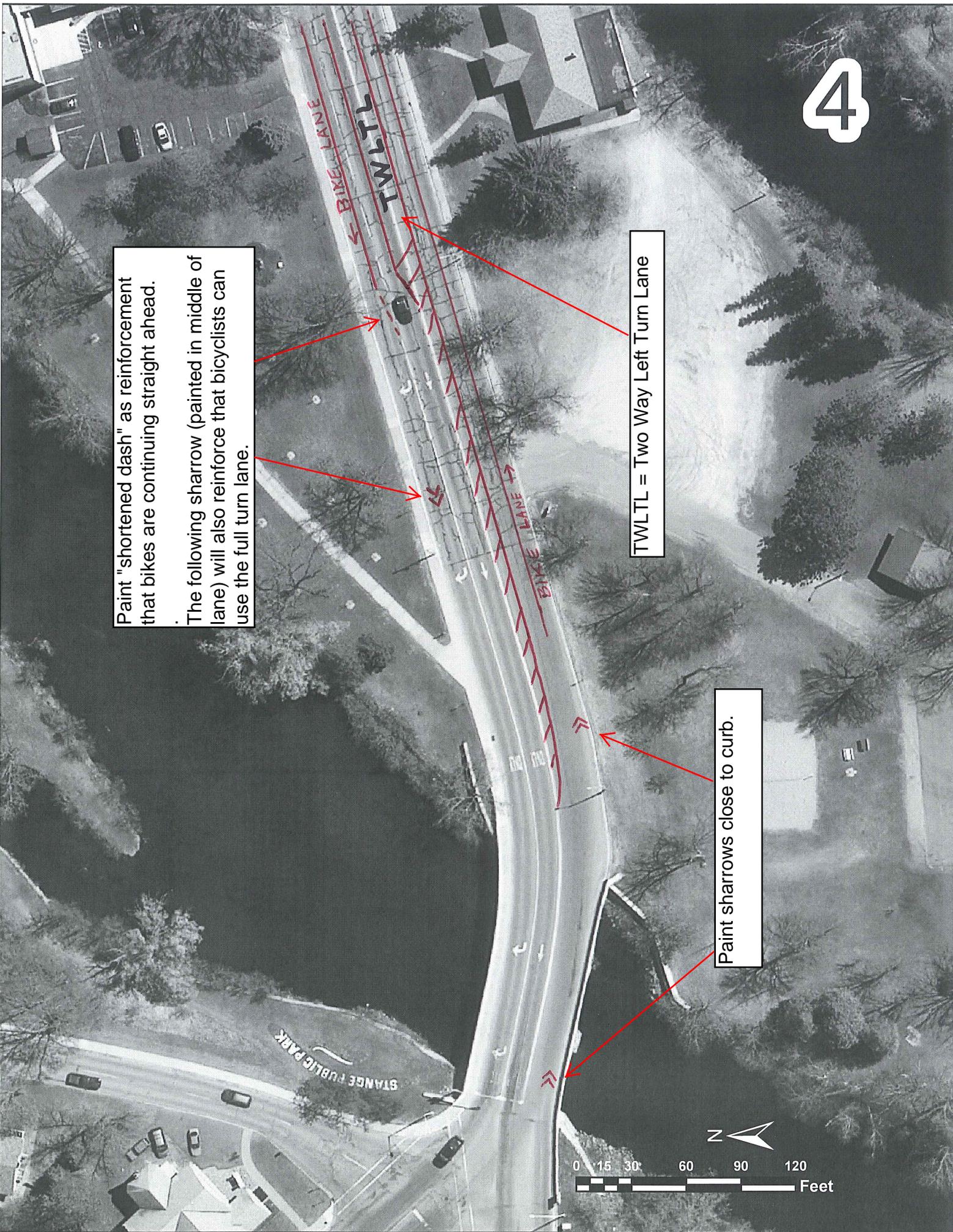
If new bridge is constructed, then create a new 5-foot wide or greater asphalt path to connect to the parking lot and the sidewalk along First Street.

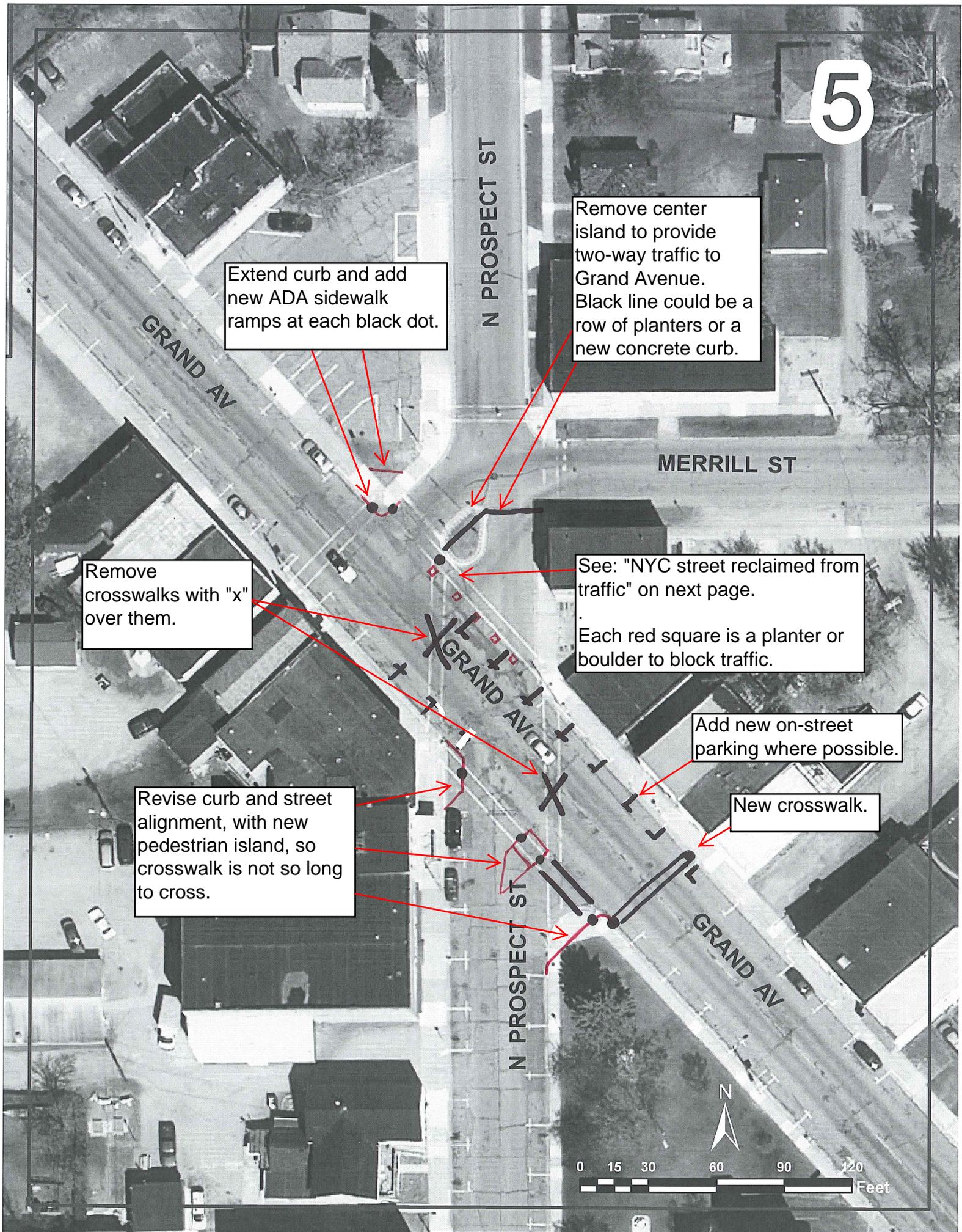


Paint "shortened dash" as reinforcement that bikes are continuing straight ahead. The following sharrow (painted in middle of lane) will also reinforce that bicyclists can use the full turn lane.

TWLTL = Two Way Left Turn Lane

Paint sharrow close to curb.





Extend curb and add new ADA sidewalk ramps at each black dot.

Remove center island to provide two-way traffic to Grand Avenue. Black line could be a row of planters or a new concrete curb.

Remove crosswalks with "x" over them.

See: "NYC street reclaimed from traffic" on next page.
Each red square is a planter or boulder to block traffic.

Add new on-street parking where possible.

Revise curb and street alignment, with new pedestrian island, so crosswalk is not so long to cross.

New crosswalk.



NYC street reclaimed from traffic.

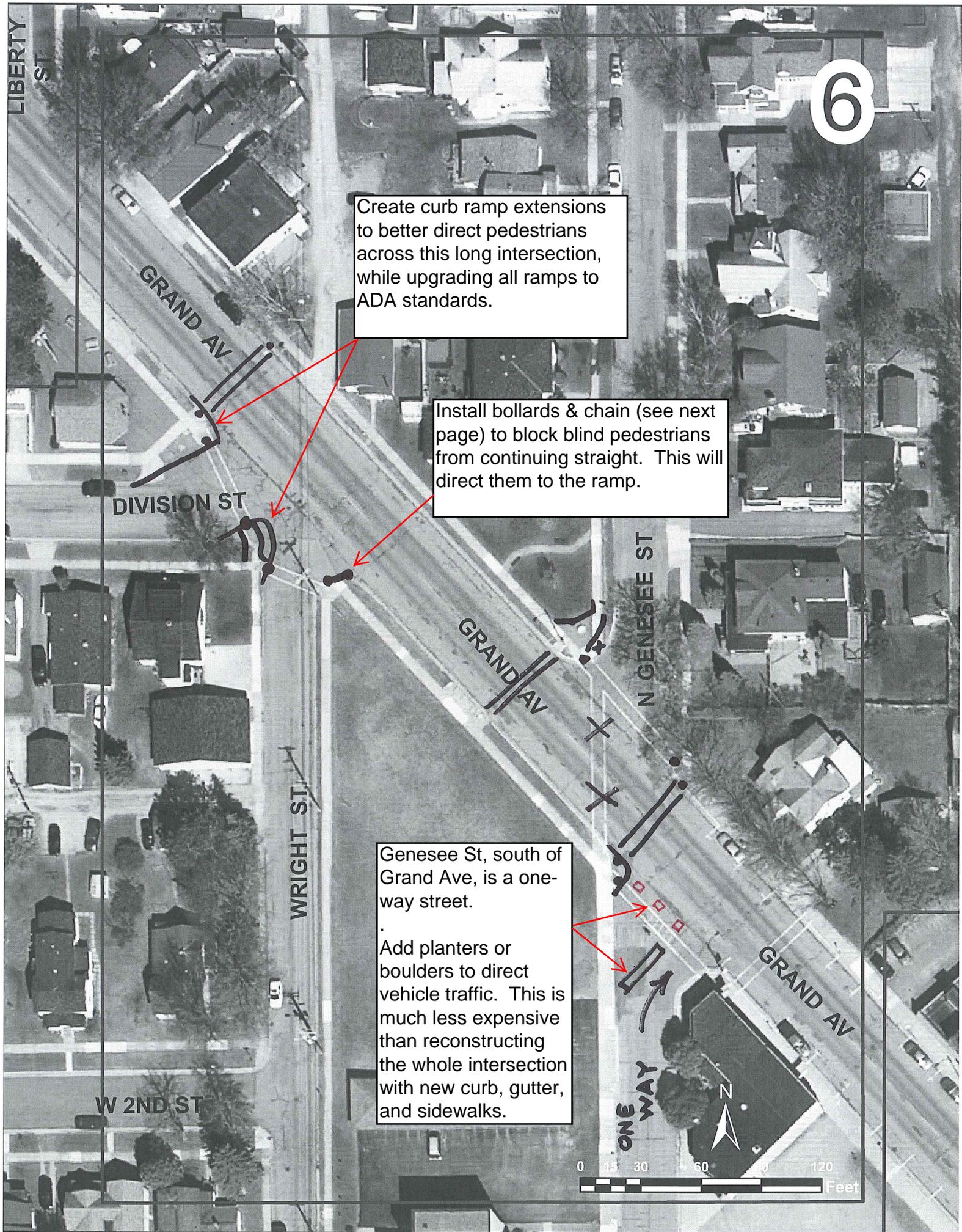


Source: Google StreetView

Planters and boulders installed as decorative “curb.”

ADA approved truncated dome panels installed at “curb” ramps.

Grey surface treatment added over pavement in new pedestrian area.



Create curb ramp extensions to better direct pedestrians across this long intersection, while upgrading all ramps to ADA standards.

Install bollards & chain (see next page) to block blind pedestrians from continuing straight. This will direct them to the ramp.

Genesee St, south of Grand Ave, is a one-way street.
Add planters or boulders to direct vehicle traffic. This is much less expensive than reconstructing the whole intersection with new curb, gutter, and sidewalks.



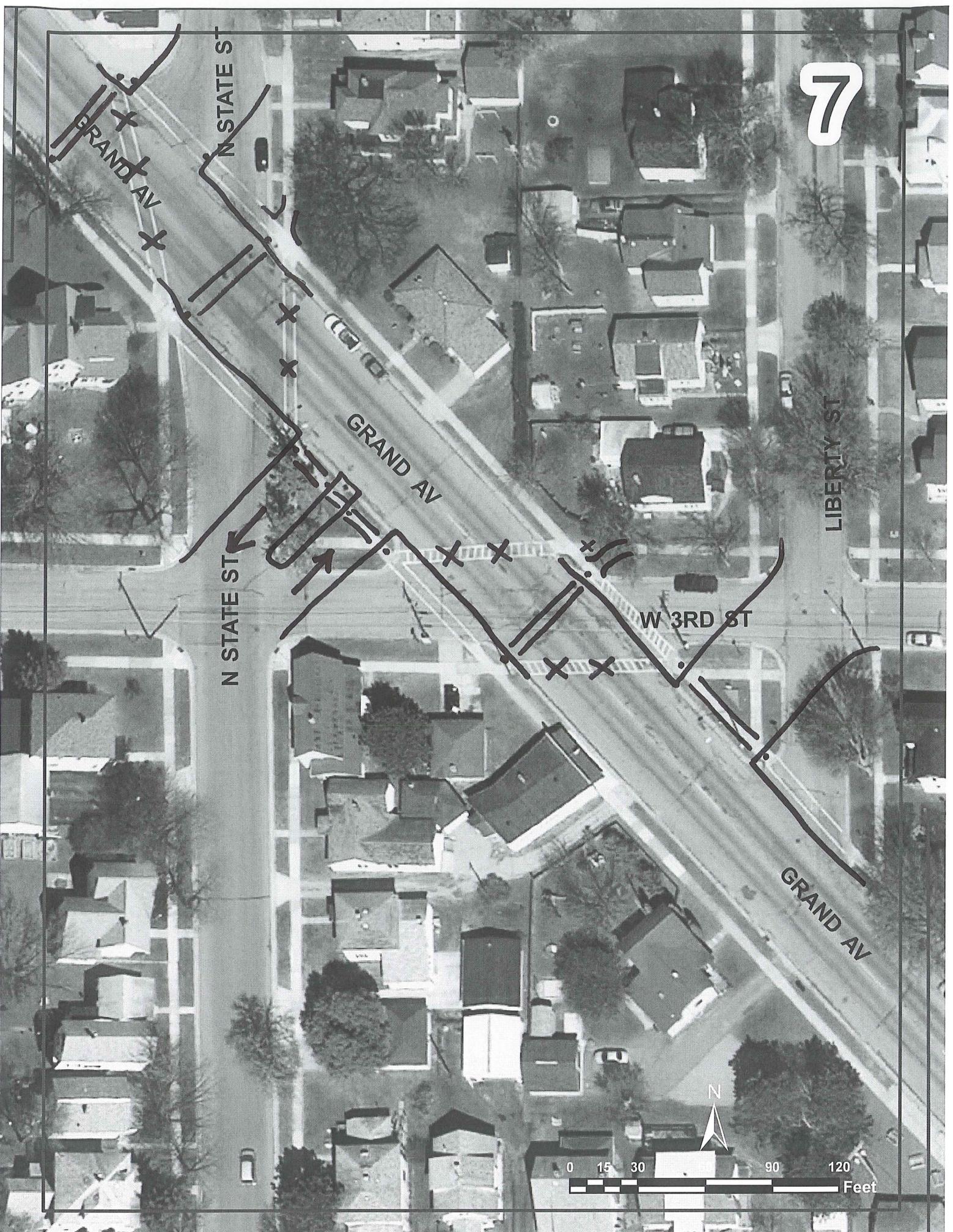
Two bollards & chain.



Source: Google StreetView

Two bollards & chain block blind pedestrians from crossing the street where a crossing does not exist.

7



N STATE ST

GRAND AV

GRAND AV

LIBERTY ST

N STATE ST

W 3RD ST

GRAND AV



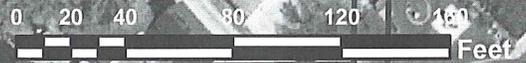
GRAND AV
GRAND AV

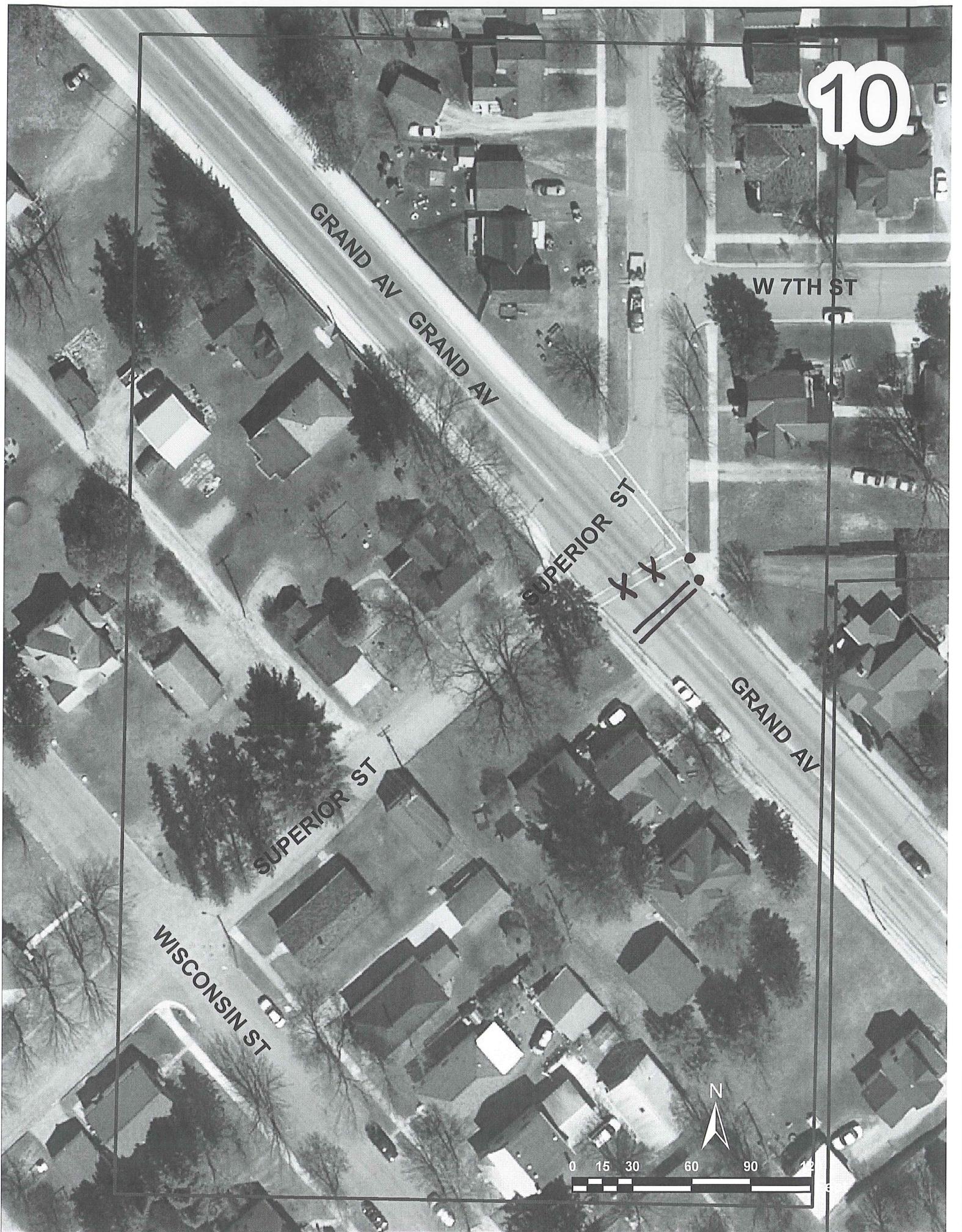
CHIPPEWA ST

CHIPPEWA ST

GRAND AV
GRAND AV

CHIPPEWA ST
WISCONSIN ST





GRAND AV GRAND AV

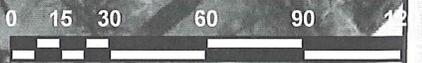
W 7TH ST

SUPERIOR ST

GRAND AV

SUPERIOR ST

WISCONSIN ST



ATTACHMENT I

Recommended Downtown Bike Route Loop Improvements

Recommendation: Creating STH 64 Downtown Loop Bike Route

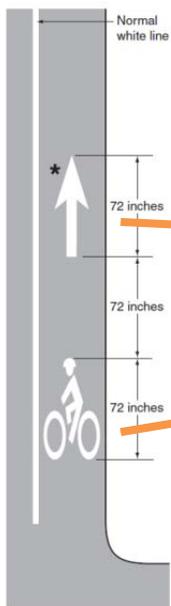
Section C

Between Logan St and Polk St, paint bike lane between east and west crosswalks.

STH 64, westbound at Logan Street



Source: Google Street view



B - Helmeted Bicyclist Symbol

MUTCD Figure 9C-3



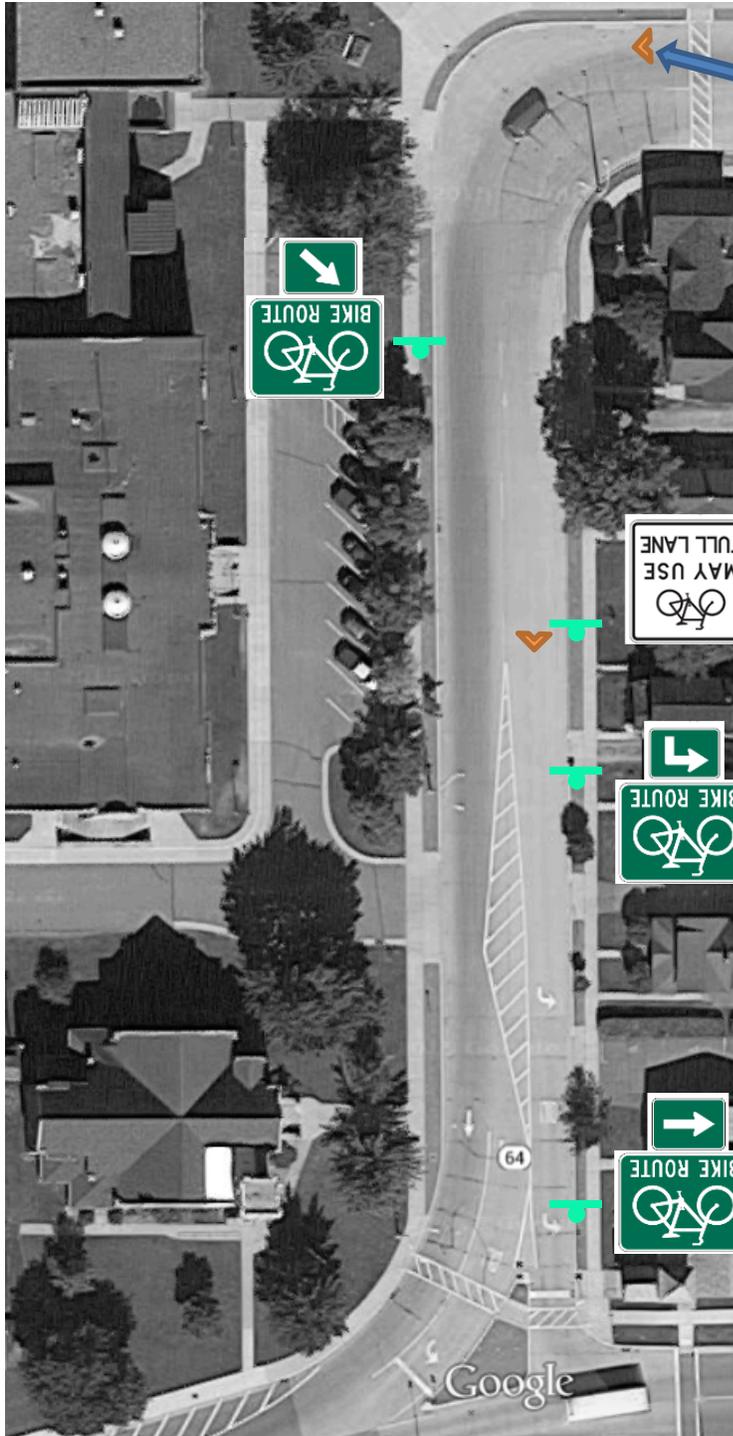
Source: NCWRPC

Sample **bike lane** next to on-street parking.

Next page...

Section C - continued

Install Polk Street signs and markings per below:



Source: Google

Polk St

Paint the center of the sharrow 11 feet from the face of the curb.

DO NOT apply glass beads to sharrow
– too slippery for bikes.

👉 = Paint **THIS** sharrow
in middle of lane.



Recommendation: Creating STH 64 Downtown Loop Bike Route

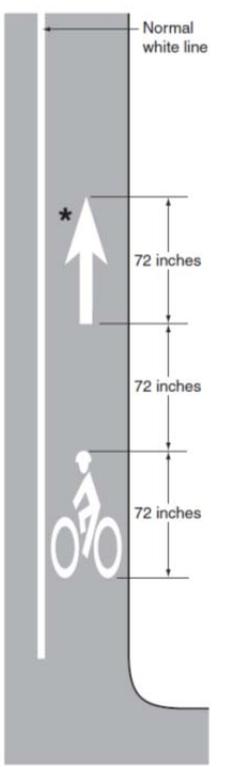
Section D

Paint line and bike lane symbol (MUTCD Figure 9C-3) on south side of STH 64 from Polk St, east to Scott Street.



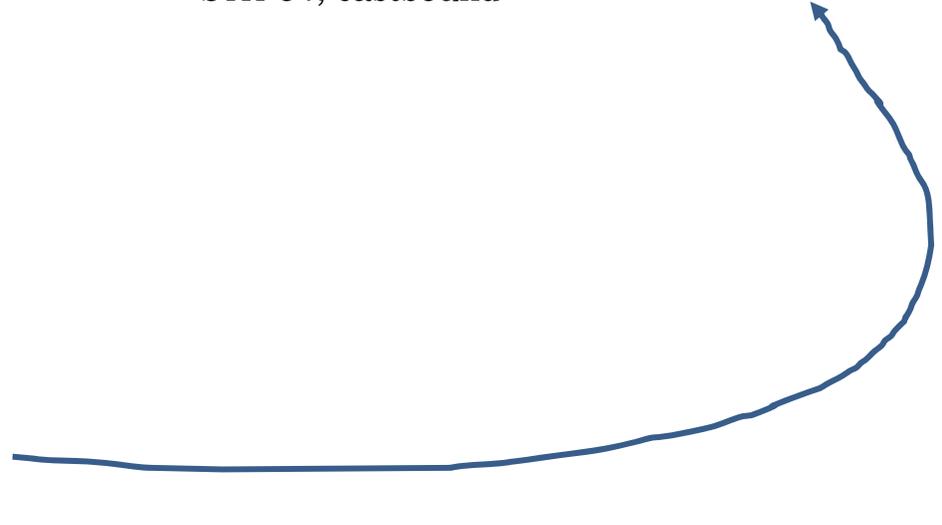
Source: NCWRPC

STH 64, eastbound



B - Helmeted Bicyclist Symbol

MUTCD Figure 9C-3



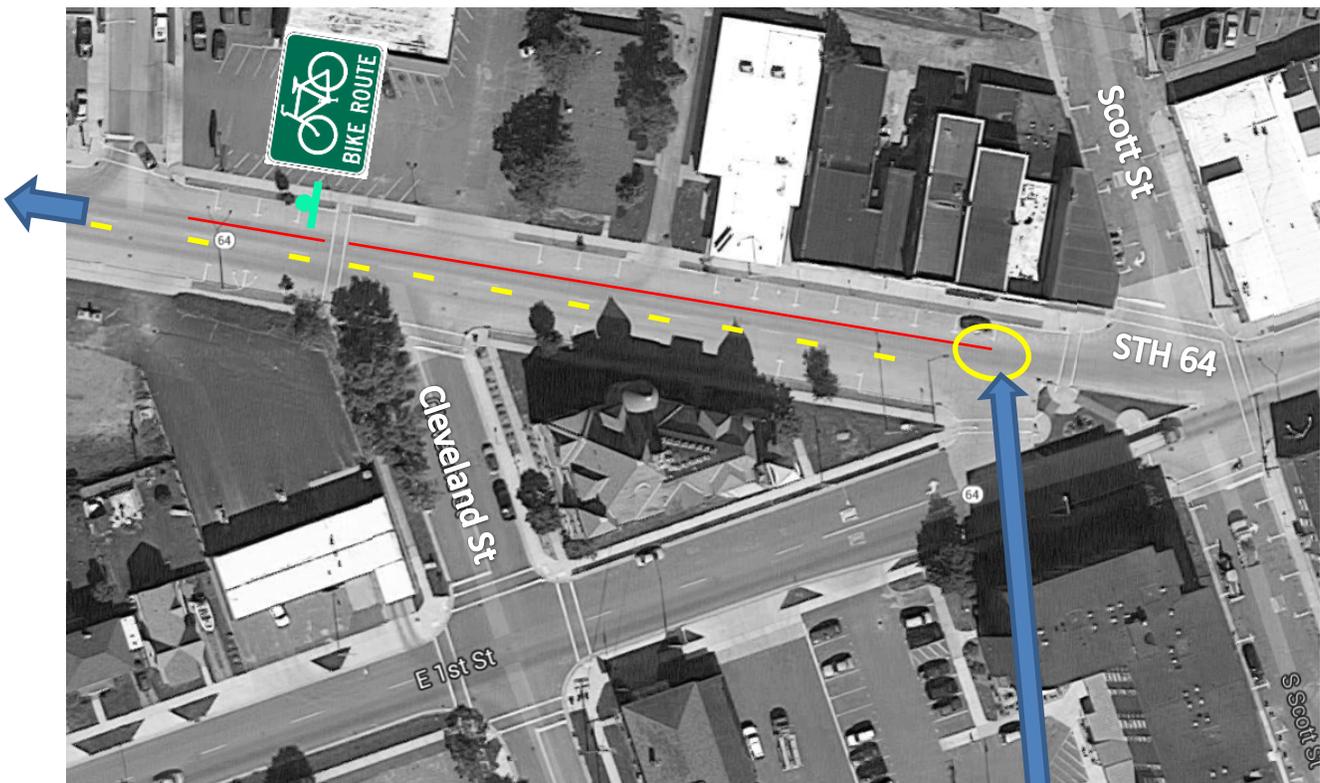
Recommendation: Creating STH 64 Downtown Loop Bike Route

Section E

On STH 64 westbound, starting at Scott Street, possibly move “yellow” center line dashes to south side of concrete crease in order to create two 12-foot wide travel lanes in the westbound direction (see below drawing, and other side).

Paint bike lane on north side of westbound STH 64, from driveway just east of Cleveland St (red lines = bike lane), west to Logan Street. See “Section C” diagrams for how to paint and sign between Logan St and Polk Street.

No bike route signs on STH 64, east of Cleveland Street.



Source: Google

STH 64 westbound

Start bike lane at beginning of first parking stall.

This should be enough room for trucks to travel westbound on STH 64 from east of Scott Street.

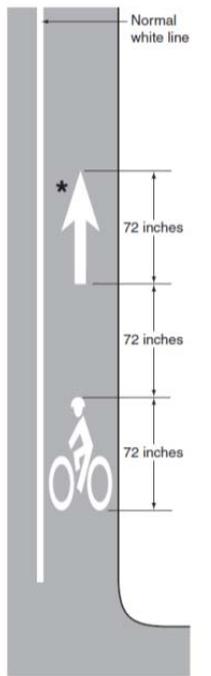
Next page...

Section E - continued

STH 64, westbound near Cleveland Street



Source: Google Street view

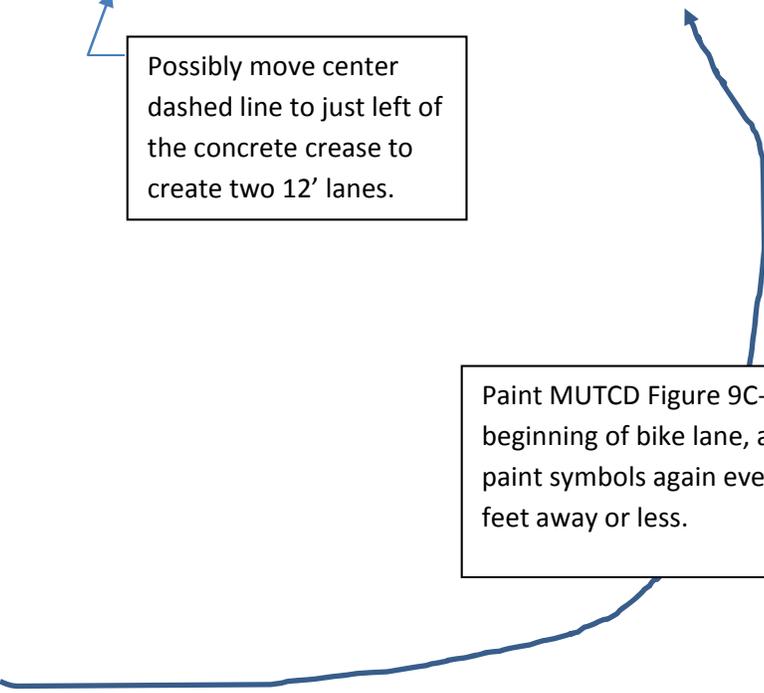


B - Helmeted Bicyclist Symbol

MUTCD Figure 9C-3

Possibly move center dashed line to just left of the concrete crease to create two 12' lanes.

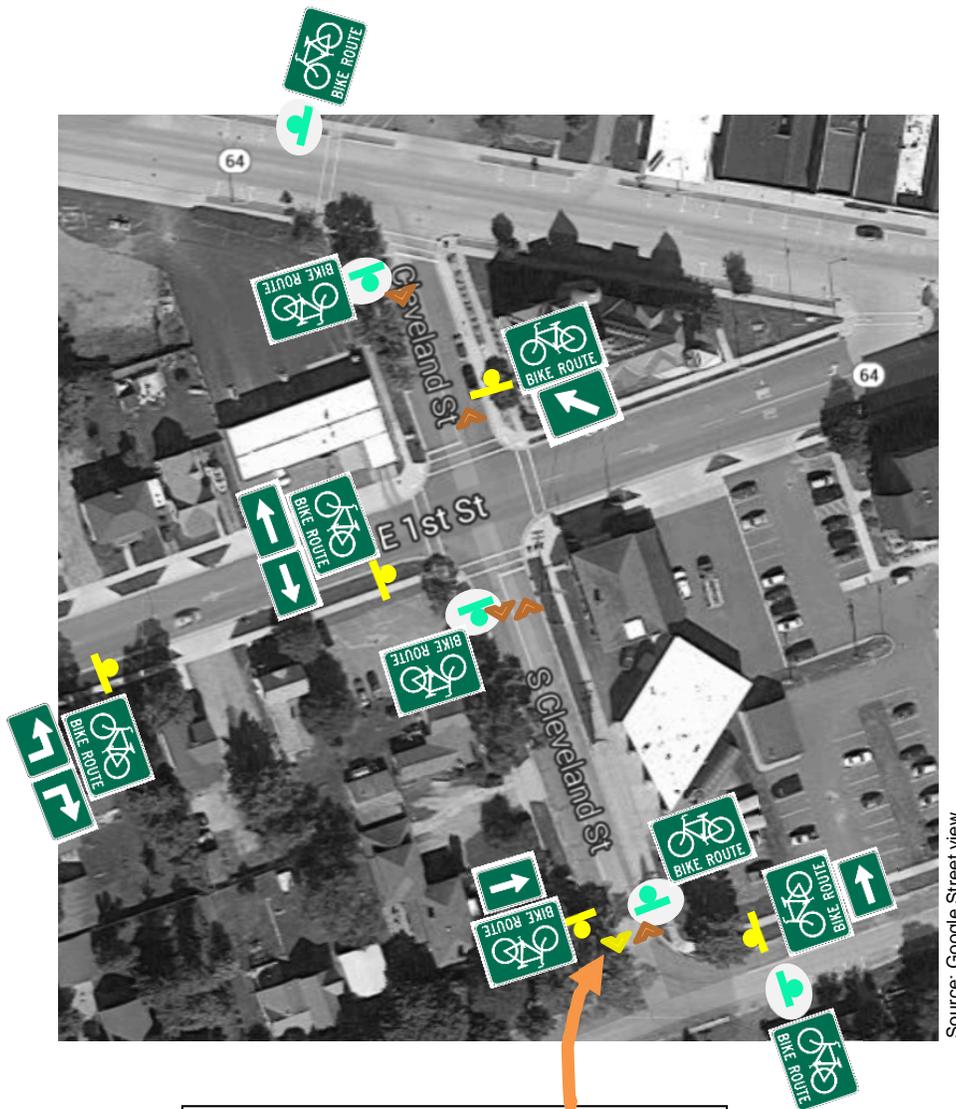
Paint MUTCD Figure 9C-3 at beginning of bike lane, and then paint symbols again every 250 feet away or less.



Recommendation: Creating STH 64 Downtown Loop Bike Route

Section F

On Cleveland Street, paint sharrows and install signs per below.



Paint sharrow with the chevron pointing toward route turn (like below).



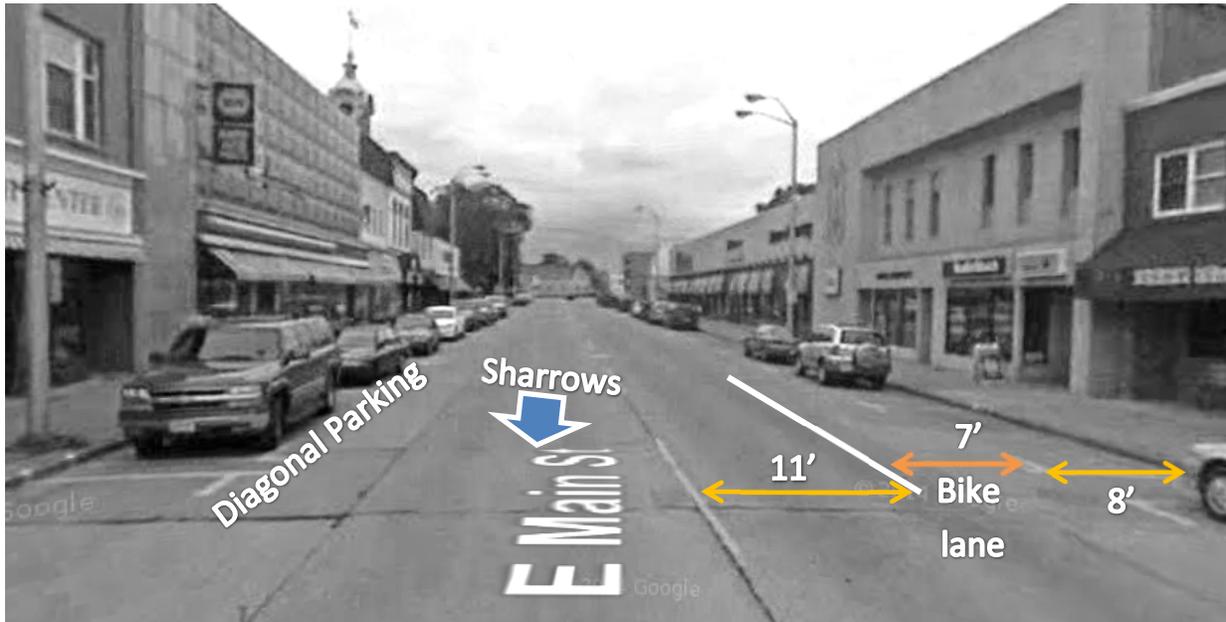
▶ **Cleveland St Sharrows**
Paint sharrow symbol
in middle of lane.

Recommendation: Creating STH 64 Downtown Loop Bike Route

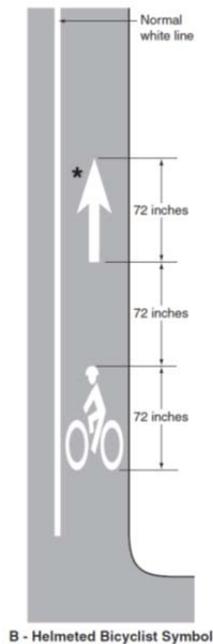
Section G

- Between Mill St and Court Street on Main Street (per diagram below):
- Paint sharrows in middle of travel lane behind diagonal parking; and
 - Add bike lane next to parallel parking.

See Section H for the Court St to Center Ave block of Main Street.



Main Street, eastbound at Poplar Street

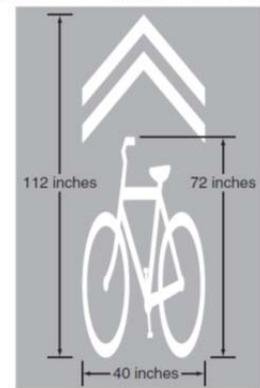


MUTCD Figure 9C-3

Paint these symbols when bike lane begins at each block, and repeat symbols every 220 feet in same block.

Shared Lane Marking = "Sharrows"

Figure 9C-9. Shared Lane Marking

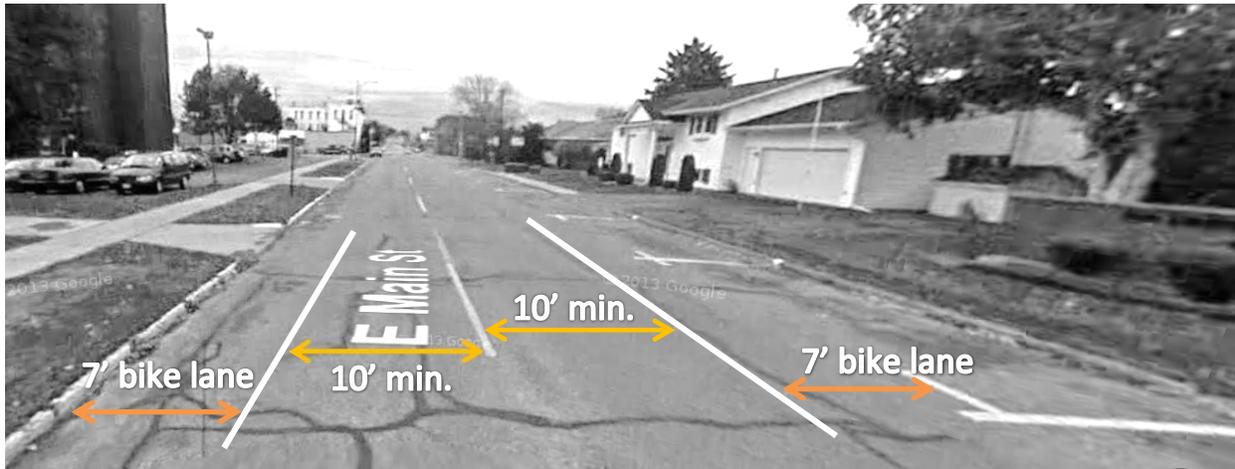


Next page...



Section G - continued

Add bike lanes to both sides of Main Street, between Cleveland Street and Mill Street.



Main Street, eastbound at Cleveland Street

Paint the *MUTCD Figure 9C-3* symbols when bike lanes begin at the start of each block.

Recommendation: Creating STH 64 Downtown Loop Bike Route

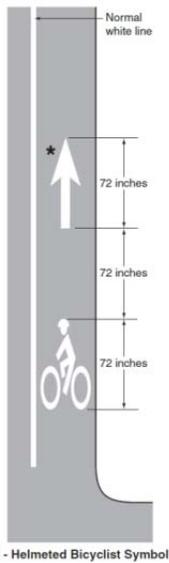
Section I

On E. 1st St, paint bike lanes where **red lines** are in below graphic.

Install signs per below.



Source: Google



Paint these symbols when bike lane begins at each block.

MUTCD Figure 9C-3



Recommendation: Creating STH 64 Downtown Loop Bike Route

Section J

On Mill St, paint sharrows in middle of lane where this symbol exists: “”

Install signs per below.



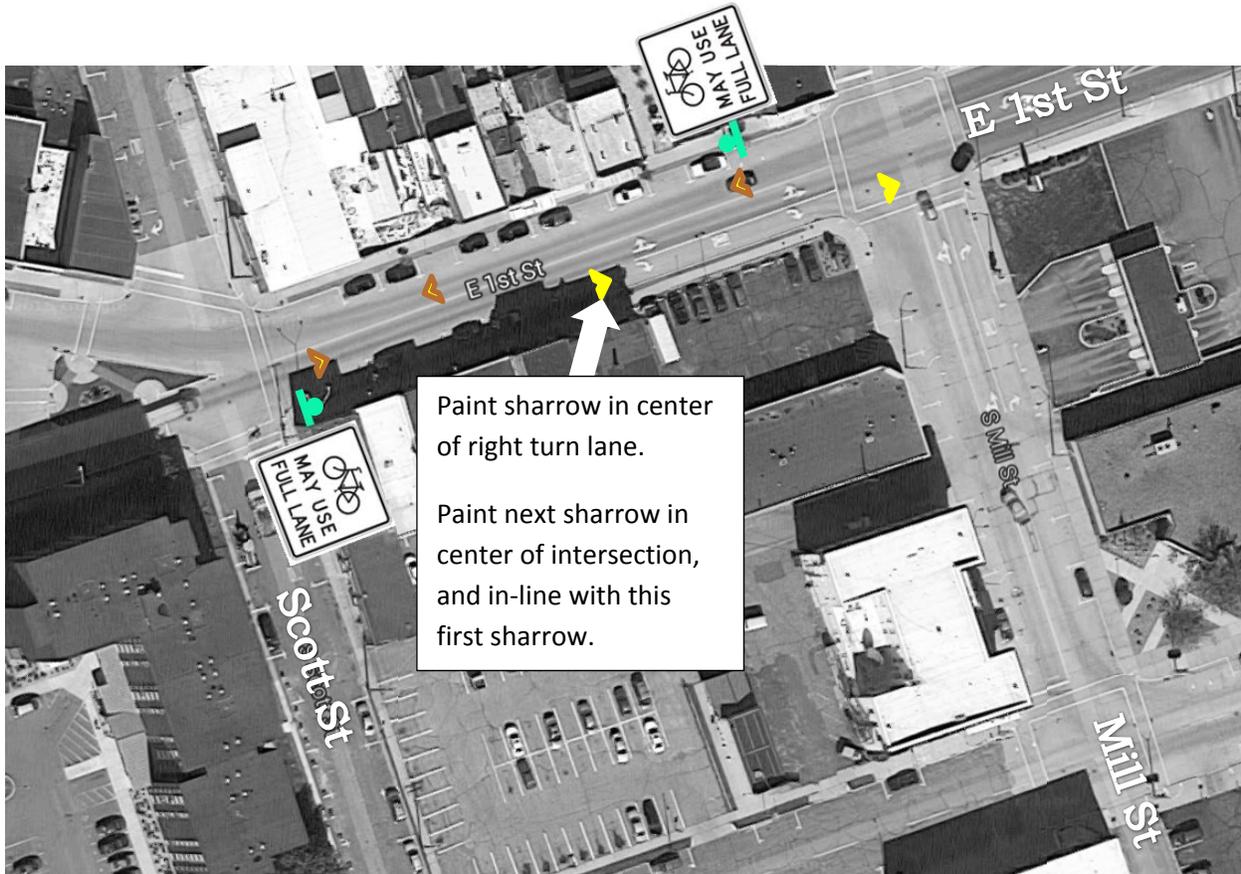
Source: Google

Recommendation: Creating STH 64 Downtown Loop Bike Route

Section K

On E. 1st St, paint sharrows in middle of lane where this symbol exists: “🚲”

Install signs per below.



ATTACHMENT J

Recommended 6th Ward STH 64 Improvements

Recommendation for STH 64 between Rivers.

Remove on-street parking on STH 64 between Praire River Bridge and Wisconsin River Bridge, except between Genesee St and Prospect St. Replace on-street parking with marked bike lanes.

Add sharrows to middle of each travel lane between Genesee St and Prospect St.



 = sharrow (see MUTCD for shared lane marking symbol).

NP = no parking, replace with bike lane.



ATTACHMENT K

Recommended MARC & Stange Park Additions

Recommended Merrill Area Recreation Center & Stange Park Additions

MARC Ball Fields & Bike Racks

Add gravel paths to connect wheelchair parking to ball fields.



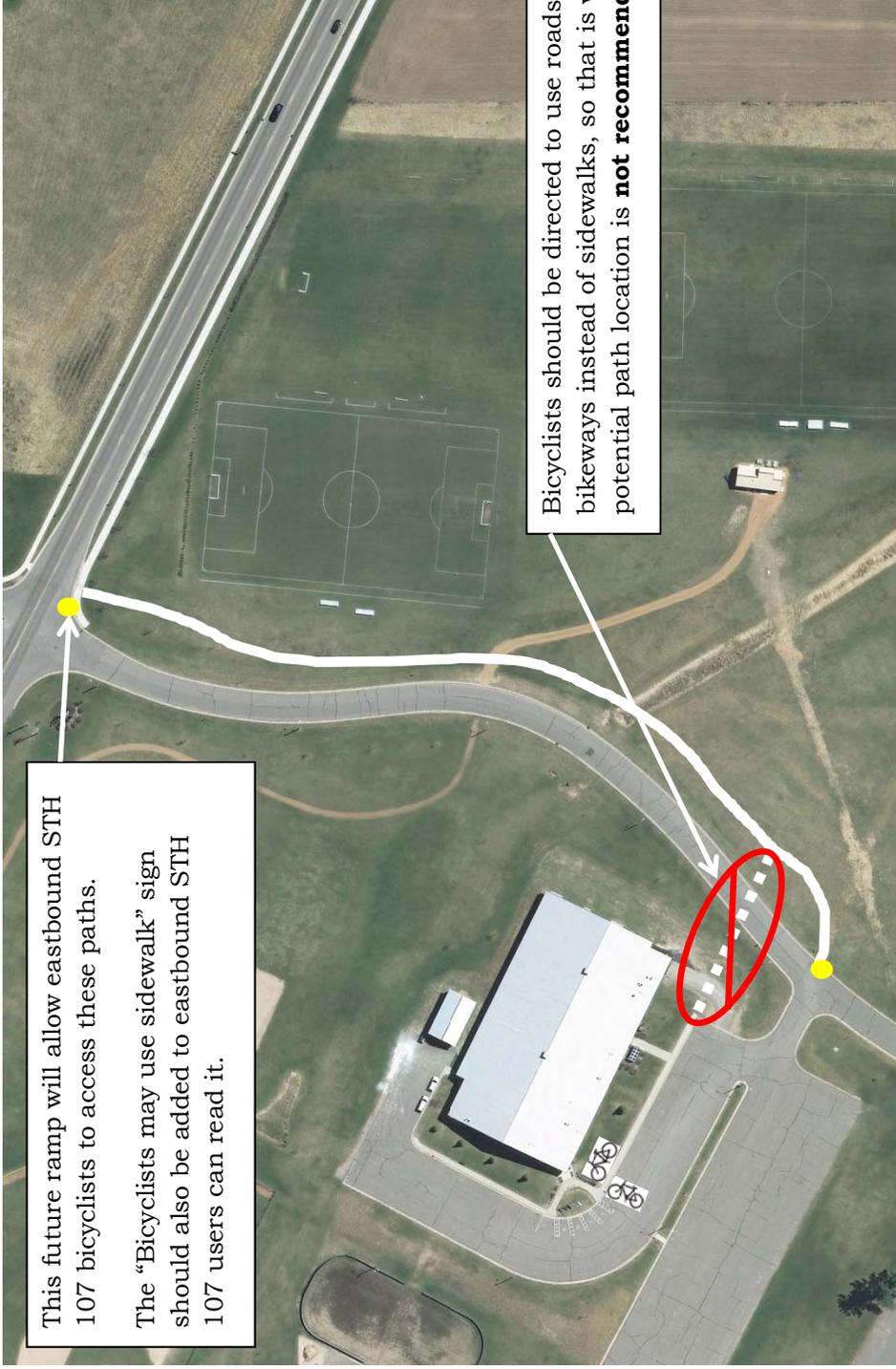
Source: WROC 2010 Airphoto

-  = Each potential bike rack location shows paved space off the main trail for 11-bike rack. Begin by installing one rack to gauge demand.
-  = Potential location for gravel path (at least 5-foot wide) to connect handicapped parking to ball fields.



Recommended Merrill Area Recreation Center & Stange Park Additions

MARC Paths & Smith Center Bike Racks



This future ramp will allow eastbound STH 107 bicyclists to access these paths.

The "Bicyclists may use sidewalk" sign should also be added to eastbound STH 107 users can read it.

Bicyclists should be directed to use roads or bikeways instead of sidewalks, so that is why this potential path location is **not recommended**.

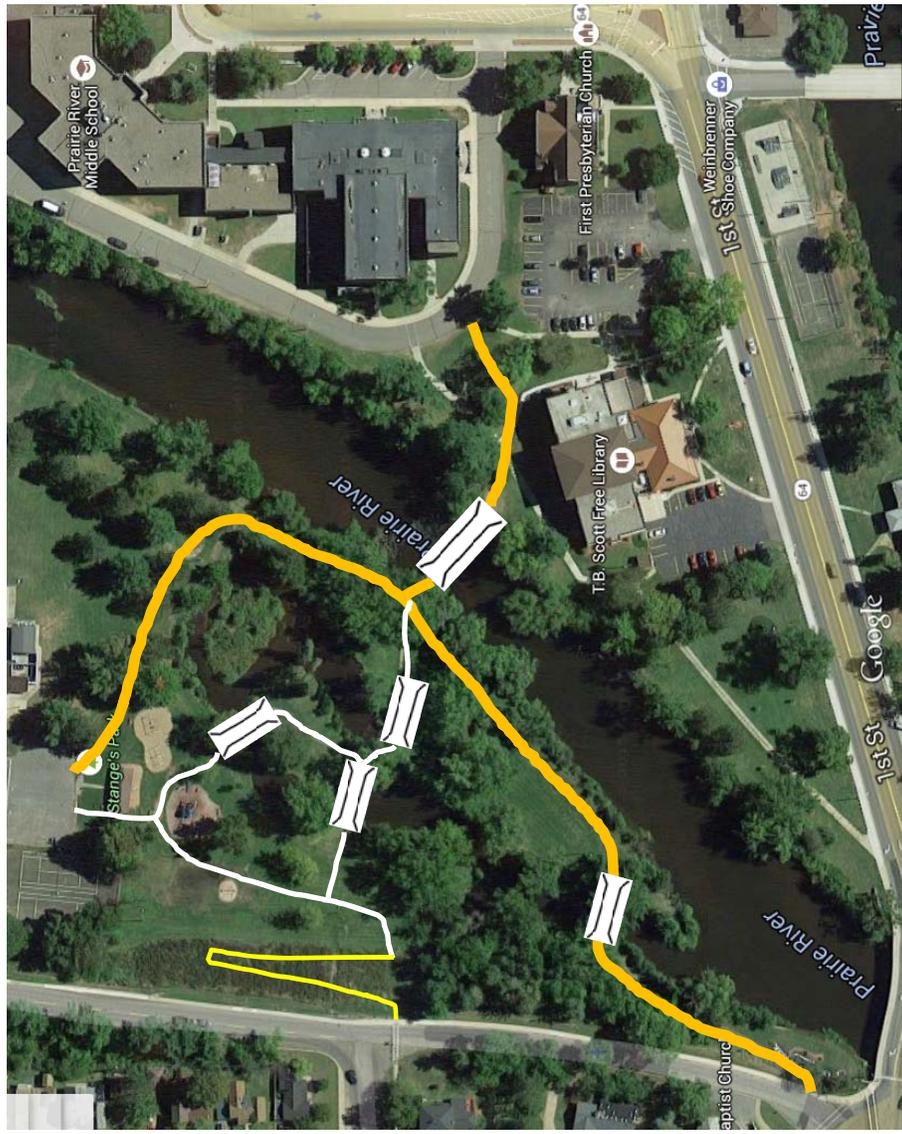
Source: WROC 2010 Airphoto

- = Potential 11-bike rack location.
- = Potential location for gravel path to connect handicapped parking to ball fields.
- = Sidewalk/path ramp.



Recommended Merrill Area Recreation Center & Stange Park Additions

Stange Park Paths



Source: Google

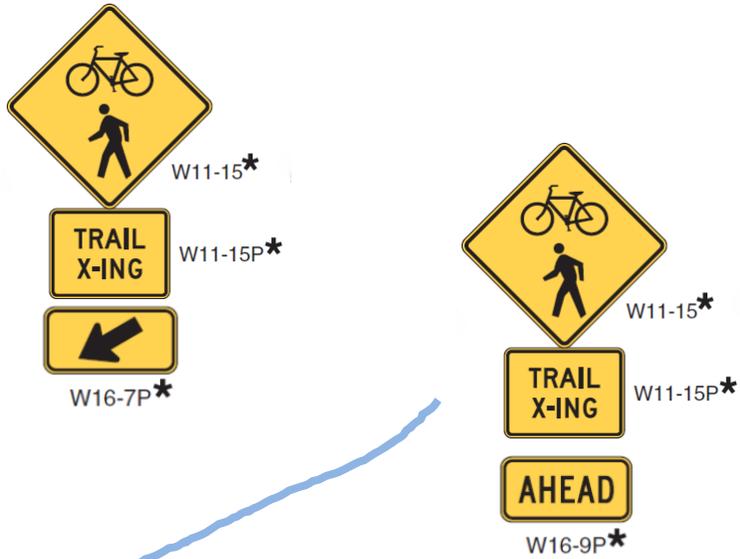
-  = Potential location for 8-foot wide asphalt bikeway (pedestrians also allowed).
-  = Potential location for 5-foot wide asphalt path.
-  = Potential location for 5-foot wide asphalt switchback path down hill. Follow ADA guidelines when designing path.



ATTACHMENT L

Recommended River Bend Trail Crossing Signs

Recommendation:
River Bend Trail Crossing Signs



Source: Google

Where the River Bend Trail crosses a street, paint a more visible crosswalk style (e.g. Continental, Zebra, or Ladder) as seen below:

